

UNIVERSITY OF KWAZULU-NATAL

**An exploration of rural communities' and Government response strategies to
drought in South Africa: The case of Msinga villages in KwaZulu-Natal
province**

By

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DECLARATION

I **Joseph Rudigi Rukema**, hereby declare that this thesis is my own original work and has not been submitted at any University for examination. The sources used are fully acknowledged by complete references. This thesis is submitted in the fulfilment of the Doctor of Philosophy degree in Social Policy, in the School of Sociology and Social Sciences, Faculty of Humanities, Development and Social Sciences at the University of KwaZulu-Natal, Durban, South Africa.

Signature..........Date...../...../.....

Dedication

This thesis is dedicated to my beloved son, Johan Nduhura Rukema and to my late mother Claudia Bukuru.

Abstract

This thesis seeks to explore and examine the application and use of indigenous knowledge systems (IKS) in the management of drought through a case study of Msinga village communities in the northern parts of KwaZulu-Natal Province, paying specific attention to droughts that have been recorded and that prevail in the area. Government's policy aimed at mitigating and the effect of drought on communities and its effectiveness is examined as well. The question is whether government policy measures supplement rural communities' drought management strategies.

The findings demonstrated that droughts are endemic in the study area and that drought-management strategies are as intrinsic to local livelihood systems as are seasonal-adjustment strategies. The findings also indicated that communities in Msinga have knowledge of drought management. However, this knowledge contributes very little to the management of drought. The findings also demonstrated that there is poor capacity in government to deal with disasters and this has serious repercussions for poor rural communities in Msinga. Disaster management requires disaster reduction, planning, and capacity to reduce the losses borne by impoverished households. This process will be more effective if there is efficient mobilization of resources, rapid responses, and a long-term strategy to prevent drought and reduce the risks of vulnerable groups, rather than transferring risks. The new legislation, the Disaster Management Act of 2002, should ensure that any form of financial and bureaucratic bottlenecks are eliminated so that assistance reaches people more quickly and is based on developing a long-term programme targeting the reduction of risks from the drought prevailing in Msinga. It is also important that NGOs in the area are empowered and involved in disaster management and are able to play their full role.

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ABBREVIATIONS

AFRA	Association for Rural Advancement
ANTHA	African Traditional Healers' Association
BBC	British Broadcasting Corporation
DC	Drought Committees
ENSO	El Nino Southern Oscillation
WFP	World Food Programme
FEMA	Federal Emergency Management Agency
FFC	Financial and Fiscal Commission
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICRC	International Communities of Red Cross
IDP	Integrated Development Plan
IDNDR	International Decade for Natural Disaster Reduction
IKS	Indigenous knowledge systems
IMC	Inter-Ministerial Committee for Disaster Management
IIRR	International Institute for Rural Reconstruction
IRIN	Integrated Regional Information Networks
MWRRU	Maurice Webb Race Relations Unit (UKZN)
NAD	Native Affairs Department
NDC	National Drought Committee
NDMC	Natural Disaster Management Committee
NGOs	Non-Governmental Organizations
NRC	National Research Council
OFS	Orange Free State
PAR	Pressure and release
SADC	Southern Africa Development Community
UK	United Kingdom
UN	United Nations
UNDP:	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
WB	World Bank
WCS	World Conservation Strategy
WDR	World Development Report
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

TABLE OF CONTENTS

Declaration.....	i
Dedication.....	ii
Abstract	iii
Acknowledgements.....	iv
Abbreviations	v

CHAPTER ONE: INTRODUCTION

1.1	Introduction	1
1.2	Background of the study	1
1.3	Statement of the problem	5
1.4.	Aims and objectives	9
1.5.	Main research questions	10
1.6.	Conceptualisation	11
1.7.	The Significance of the study	16
1.8.	Research Design	18
1.9.	Thesis Structure	18

CHAPTER TWO: BACKGROUND INFORMATION ON THE STUDY AREA

2.1.	Introduction	20
2.2.	Msinga Field site and prevalence of drought	20
2.3.	Geographical Location of Msinga	21
2.4.	Ecological conditions of Msinga	23
2.5.	Population data	24
2.6.	Legacy of the policy in Msinga	25
2.7.	Inter-tribal and political conflict in Msinga	26
2.8.	Cultural beliefs and ancestors in Msinga	27
2.9.	Gender and land ownership in Msinga	28
2.10.	Livelihoods and income generation	29
2.11.	Housing	30
2.12.	Services	32
2.12.1.	Roads	32
2.12.2.	Running water	32
2.12.3.	Electricity	34
2.12.4.	Refuse Removal Service	34
2.12.5.	Telecommunications	34
2.13.	Education	34
2.14.	Employment and unemployment	36
2.15.	Health care facilities	37
2.16.	Traditional health care	38
2.17	Conclusion	39

CHAPTER THREE: LITERATURE REVIEW:

3.1. Introduction	40
PART I: Literature Review of Drought	
3.2. Conceptualisation of drought	40
3.3. Causes of drought	44
3.3.1. Social or human-made causes of drought.....	44
3.4. Linking drought to vulnerability and poverty	46
3.4.1 The Pressure and release Model in explaining vulnerability	48
3.4.2 Access Model	49
3.4.3 Vulnerability and Assets	49
3.5. The socio-economic and political impact of drought.....	51
3.6. Drought in other countries	52
3.7. Drought in South Africa	53
3.8. Drought in South Africa in 1800s.....	54
3.8.1. Government responses	55
3.9. Drought in South Africa the 1900s- 2004.....	55
3.8.1. Government Responses from 1900s- 2004.....	58
3.10. Drought in KwaZulu- Natal- 1800 s	60
3.10.1. Community responses	61
3.11. Drought in KwaZulu-Natal 1900-2004.....	62
3.11.1. Government and Community responses to drought in KwaZulu-Natal	64
3.12. International Responses.....	65
3.12.1. United Nations responses to drought	65
3.12.2. The world conference on Natural Disaster Reduction: Review of the IDNDR.....	68
3.12.3. Accomplishments of the the International Decade for Natural Disaster reduction	69

PART II: LITERATURE REVIEW: INDIGENOUS KNOWLEDGE

3.13. Introduction	71
3.14. Linking indigenous knowledge to drought management.....	72
3.14.1. Drought preparedness and early warning	72
3.14.2. Drought mitigation and prevention.....	74
3.14.3. Coping and responses	75
3.14.4. Recovery from drought	78
3.15. Bridging indigenous knowledge and public policy and Western science	79
3.16. Challenges in bridging indigenous knowledge and public policy ..	82
3.17. Conclusion	83

CHAPTER FOUR: THEORETICAL FRAMEWORK: SUSTAINABLE RURAL LIVELIHOODS FRAMEWORK

4.1.	Introduction	.....85
4.2.	Brief Historical Background of Sustainable Rural Livelihoods Approach	.....85
4.3.	Ways if defining SRLA	.....86
4.4.	Linking sustainable livelihoods to indigenous knowledge	.....90
4.5.	Components of sustainable livelihoods	.....90
4.5.1.	Social capital and social networks	.....91
4.6.	Bridging social capital and Public Policy	.....92
4.7.	The role of social capital in disaster management	.....95
4.8.	Conclusion	.....96

CHAPTER FIVE: RESEARCH DESIGN AND METHODOLOGY

5.1.	Introduction	.....97
5.2.	Research Design	.....97
5.3.	Method of selecting sample	.....98
5.4.	The sample selected	.....99
5.5.	Data Collection Procedures	.....100
5.5.1.	Focus Group Discussions	.....101
5.5.2.	Individual interviews	.....104
5.5.3.	Observation	.....105
5.5.4.	Unstructured interviews	.....105
5.6.	Language and Culture	.....105
5.7.	Negotiating access and adaptation to local settings.....	106
5.8.	Documentary Review	.....108
5.9.	Data Analysis	.....109
5.10.	Confidentiality	.....111
5.11.	Ethical considerations	.....111
5.12.	Informed consent	.....111
5.13.	Credibility, conformability and Dependability of the findings.....	112
5.13.1.	Credibility	.....112
5.13.2.	Conformability	.....112
5.13.3.	Dependability	.....112
5.14.	Unexpected occurrences	.....113
5.15.	Limitations of study and challenges	.....114
5.15.	Conclusion	.....117

CHAPTER SIX: RESULTS AND RESEARCH FINDINGS

6.1.	Introduction118
------	--------------	----------

PART I

6.2.	Demographic information118
------	-------------------------	----------

PART II

6.3.	Focus Group Discussions	.....125
6.3.1.	Participants' perception on whether drought is a	

serious problem in Msinga	126
6.3.2. Impact of Drought on Different Livelihood Systems in Msinga	128
6.3.3. Participants' knowledge of the causes of drought	133
6.3.4. Early warning indicators of drought	135
6.3.5. Drought preparedness/prevention strategies.....	137
6.3.6. Households' drought coping Strategies/mitigation Strategies	141
6.3.7: Feelings about drought management strategies used.....	144
6.3.8. Capacity to recover	145
6.3.9. Proposal on drought management	145

Part III

6.4. Individual Interviews with Community Leaders	146
6.4.1. Description of the seriousness of drought in Msinga	147
6.4.2. Community leadership and the knowledge on the causes of drought in Msinga	148
6.4.3. Community leadership and drought prediction indicators .	149
6.4.4. Community leadership and drought preparedness mechanisms	150
6.4.5. Community leadership and drought mitigation Strategies .	152
6.4.6. Relationship between community leadership and government institutions	153
7.4.7. Community leadership and proposal on drought management	153
6.5. Conclusion	153

CHAPTER SEVEN: SOUTH AFRICA'S DISASTER MANAGEMENT SYSTEM IN PRACTICE: THE CASE OF DROUGHT IN MSINGA

7.1. Introduction	156
7.2. Disaster Preparedness	157
7.2.1. Policy Commitment	157
7.2.2. Hazard, vulnerability and risk assessment	160
7.2.3. National committees	162
7.3. Disaster early Warning	163
7.4. Disaster Relief and assistance	164
7.5. Initiatives of city officials and local level organizations	165
7.6. Conclusion	167

CHAPTER EIGHT: DISCUSSION, RECOMMENDATIONS AND CONCLUSION

8.1 Introduction.....	168
8.2 Integrating IKS and public policy.....	169
8.3 Community IKS and Government responses to drought in Msinga.....	171
8.4. Recommendations.....	177

8.4.1 Community and IKS.....	177
8.4.2. Policy recommendations.....	179
8.5. Concluding remarks.....	180

REFERENCES	183
-------------------------	-----

TABLES

Table 1 Population Age in five-year intervals	24
Table 2 Households by population group.....	32
Table 3 Education level attained by over 20 year-olds.....	35
Table 4 Education Institution attended	36
Table 5 Employment status	37
Table 6 Health Facilities	38
Table 7 Drought stricken in the years 1926 to 1939	56
Table 8 Number of Districts declared drought stricken Annually 1926 to 1939	56
Table 9 Production losses 1990 to 1992	58
Table 10 Allocation of drought relief in terms of Population groups	59
Table 13 Demonstrates the number of participants in each area and in each focus group	103
Table Indicates the demographic information of participants.....	119

FIGURES

Figure 1 The province of KwaZulu-Natal in South Africa and Msinga Municipality within the Province	22
Figure 2 The study areas and surrounding local municipalities	23

PLATES

Plate 1. Researcher (I) with the headman setting in front of a traditional house	31
Plate 2. The researcher at a dying spring where community members from Cwaka, one of the municipal areas, fetch water	33

APPENDICES

APPENDIX 1: DEMOGRAPHIC INFORMATION	198
APPENDIX 2: INTERVIEW SCHEDULE FOR GROUP DISCUSSION ..	200
APPENDIX 3: INTERVIEW SCHEDULE FOR COMMUNITY LEADERS	203
APPENDIX 4: INTERVIEW SCHEDULE FOR PUBLIC SERVANTS.....	204
APPENDIX 5: STORY ABOUT MSINGA	208

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The aim of this study is to examine the management of drought through the use of indigenous knowledge systems (IKS) and to establish whether the government's policies are concomitant with local knowledge of drought management. The study is conducted in Msinga village communities in the northern part of the Province of KwaZulu-Natal, South Africa.

The introductory chapter provides a background to the area of investigation of the study. The research problem is highlighted and a brief historical background of the study area and conceptualization of the study is described. The chapter focuses on the research questions that this study seeks to answer as well as the significance of the research. It describes the research approach adopted in the study, which is discussed in detail in Chapter Six.

1.2 Background of the study

Drought is a global phenomenon that affects most countries, both developed and developing. In sub-Saharan Africa, drought has been identified as a serious natural disaster that leads to many other societal problems, which include the exacerbation of poverty as it results in crop losses and livestock. The livelihoods of rural communities depending on the land for survival are adversely affected (Bollig, 2006, pp. 176-199). Since a vulnerable household is characterized by few or no buffers against sudden or slow catastrophes such as drought, there is reason to believe that if such a household is struck by drought, it cannot afford to absorb the effects of the shocks, with resulting in greater poverty (Winchester, 1992, p. 110).

Literature in the field of drought consistently notes that drought impacts negatively on social services such as the provision of water, education, health, and administrative services. For instance, when drought occurs, sources of water such as rivers which are mostly used by rural communities dry up. Children frequently are not able to attend school as they have to fetch water (Holloway and Von Kotze, 1996, p.32). The literature on drought also indicates that drought can cause famine where external assistance is unavailable. Wisner (1993, p.76), who examined the relationship between natural hazards and famine, concludes that various natural hazards including drought may reduce the overall amount of food, adversely affecting health due to a poor diet. During drought the market price of food often rises. Self-provisioning food producers may experience lower harvests. Others, who rely on wage-labour, petty trade or work as artisans, do not get enough to eat because they cannot afford the higher prices. If such conditions continue over long enough periods, some people will die as a result of famine (Wisner, 1993, p.79).

Drought as a natural process has policy ramifications. Wilhite (2005, p.7), Assefa and Rahmato (2006, pp.45-75), extrapolating from studies conducted in sub-Saharan countries such as Ethiopia, Kenya, Somalia, Swaziland, Zambia and Southern Sudan, including a recent study in Zimbabwe, concluded that the drought problems that affect communities are largely products of 'bad' political and managerial decisions and the mismatch of government policies and indigenous knowledge systems in the process of drought prevention, mitigation and management.

Because of drought's various effects on the population as well as on the environment, scholars and development agencies view drought not only as an ecological phenomenon resulting from the shortage of water, but a combination of many factors. These factors lead to disruption of the normal functioning of society causing human, material and environmental losses which exceed the ability of the population to cope and which need multidimensional approaches to prevent or mitigate (Blaikie 1994).

In this context, Bruins and Lithwick (1998, pp.4-20) believe that an effective approach to prevent and mitigate the impact of disaster - and drought in particular - needs a combined institutional and indigenous approach. Kamara, (2007) and Pennesi (2007) note that in Africa and in a recent study conducted in northeastern Brazil by Pennesi (2007), it was demonstrated that local communities have well-developed traditional indigenous knowledge systems for disaster management, rain predictions and coping strategies, making them more resilient to environmental change and external shocks. In some cases, however, the impact of disaster has been so severe that indigenous knowledge has not been able to effectively respond, as it exceeded IKS capacity. In these cases, government intervention is crucial.

A study conducted in Kenya, Swaziland, Tanzania and South Africa by a team of experts under the auspices of the United Nations Environment Programme in 2008, demonstrates that indigenous knowledge had, and still has, a high degree of acceptability and relevance amongst the majority of populations in which it was identified (Mwaura, 2008, p.21). However, it still lacks support and relevance in government's structures. Communities in these areas had developed knowledge on prediction and early warning, prevention, mitigation and management of drought and floods, but poor government responses have increased communities' vulnerability to disasters (Mwaura, 2008, p.37). The study further demonstrates that each community had an array of early warning indicators and well-developed structures through which the wisdom of the community was applied to deal quickly and efficiently with disasters (Mwaura, 2008, p. 42).

In Kenya for instance, when a natural disaster is predicted such as flood, a council of elders as head of villages come together and chart ways forward on what measures are to be undertaken in order to avoid disastrous effects of flood (Mwaura, 2008). In the case of flood, when it is predicted by the rain prophets, young people are dispatched in search of places of safety in case flood does occur. Once the places are identified food reserves are accumulated and placed in areas free from flood. Once the signs of flood occur, all members of the villages are advised to seek shelter

in areas that have been prepared (Formal conversation with Obiero¹, 2011). Similarly in the Republic Democratic of Congo, where I was born and grew up, when drought or the shortage of rain is predicted through rain prophets, communities get together and find ways forward. For those who are cattle keepers they liaise immediately with a distant community where drought seems not to happen. In case drought occurs, migration becomes an alternative.

Globally, there is an increasing acknowledgement of the relevance of indigenous knowledge as an invaluable and underused knowledge source, which presents developing countries, African in particular, with a powerful asset in environmental conservation and natural disaster management (Kamara, 2007). Kamara (2007, p.17) argues that "From time immemorial, natural disaster management in Africa has been deeply rooted in local communities which apply and use indigenous knowledge to master and monitor climate and other natural systems and establish early warning indicators for their own benefit and future generations".

In Africa, it has been observed that there is a mismatch between the two systems of knowledge. For instance, Richards (1993, p.62) observed how Hausa farmers in Nigeria make a series of adjustments to drought by planting and replanting different seed mixes until germination was secured or available resources were exhausted. He highlighted the dangers of 'misplaced abstraction' whereby development practitioners create a complete theory based on assumed and observed practices without involving grassroots communities in the development process and taking into account the indigenous knowledge holders.

The same context can be applied in South Africa, where the political landscape of colonialism and apartheid was a mismatch of government policies and indigenous systems in dealing with poverty alleviation and disaster management (Bond, 2002, pp.67-94). The evidence shows that colonialism and apartheid policies on poverty and drought were not designed to take into account the social and economic problems of rural communities (Bond, 2002, pp.67-94). In the post apartheid government Bond (2002) and Hoppers (2002, p.257), analyzing the integration of

¹ Obiero is a visiting Scholar at the University of KwaZulu-Natal, from Kenya. His research interest is Indigenous Music.

indigenous knowledge and public policy, also observe a mismatch between indigenous knowledge and government policies. The reason is that communities remain dependent on government. Further, government accountability to the people and communities' participation in policy development is still limited.

Given the effectiveness of IKS, numerous international and national declarations have been made since the World Summit on Sustainable Development (WSSD) in Rio de Janeiro in 1992. Recommendations relating to recognition of the contribution of indigenous knowledge and its integration into poverty processes and improving the quality of life and management of environment and natural disasters have been made (UNDP, 2005). The United Nations Millennium Declaration recognizes local and indigenous communities as the foundation for appropriate community level programme design, management and implementation (UNDP, 2005). It notes that a blended approach and methods from science and technology and from traditional knowledge can open avenues towards better disaster prevention, preparedness, response and mitigation.

1.3 Statement of the problem

An increasing number of studies indicate the disastrous effects of drought on marginalized rural poor communities. Bollig (2006), Ullah (2004) and Wilhite (2005) all note that drought in rural communities directly threatens the basic survival of the poor. South Africa is not immune from drought and the effects of drought on marginalized communities are severe (Association for Rural Advancement, 1993 and Tyson and Whyte, 2000). In 1992 the President's Council found that 55% of South Africa was threatened by desertification (Association For Rural Advancement, 1993) and the level of drought in areas such as the Eastern Cape, Western Cape, Limpopo, and northern KwaZulu-Natal was seen as becoming an economic and ecological problem. A more recent study by Tyson and Whyte (2000) demonstrates that desertification in South Africa is becoming aggravated and the level of drought is rising. Following the President's Council's findings drought, which was attributed to the *El Nino* phenomenon, caused an 80% increase in national crop failure in 1992 (National Consultative Forum on Drought, 1992, p.13). During the 1990-92 droughts

the South African Reserve Bank estimated that 50,000 jobs were lost in the agriculture sector alone, with a further 20,000 in related sectors (National Consultative Forum, 1992, pp.13-16). The Bank estimated that between 1992-3, 70,000 jobs would be lost in the Northern Transvaal alone with a countrywide total of about 100,000 jobs (AFRA, 1992, p.17). The drought between 1990 and 1992 not only affected employment but also food production and agricultural revenue which contributed 4% to Gross Domestic Product. It was again estimated that during this period, 243,000 head of cattle and 101,000 head of small stock were lost in the three communal districts of the Western North-West Province (Rwelamira, 1997, p.68). In the same year, animal prices decreased dramatically due to the poor condition of the animals and the prices of basic commodities increased dramatically (Brien, and Vogel, 1997, p.78). Nearly four million tons of maize had to be imported.

Turning to KwaZulu-Natal and Msinga in particular where this study is conducted, there is evidence that drought is an economic, health and social problem that has a severe impact on rural communities. Between 2003-2004, it was revealed by the Department of Agriculture that in the northern area of KwaZulu-Natal, more than 700,000 people were without clean water, boreholes and springs dried up and there were serious cases of diarrhea as a result (Drought Information Bulletin, No1, 2004). During the 2003-2004 droughts, the local Msinga Municipality was among the worst affected areas in UMzinyathi District Municipality. The Integrated Regional Information Networks (IRIN) (14 June, 2007) indicated that the residents of Msinga area are reported to have produced less food over the past few decades because the rain has become more erratic. People were unable to grow enough food and many were forced to seek work away from home for long periods of time.

The seriousness of drought in KwaZulu-Natal was acknowledged by the government and in 2003 it provided assistance to the affected communities. The government approved an allocation of R250 million for drought relief for KwaZulu-Natal. In November, it approved an additional R250 million, making the total allocation of R500 million up to end of 2003. A further allocation of R500 million was considered in the next financial year for long-term intervention (Drought Information Bulletin no.1/2004). It is estimated that R360 million has been spent on food parcels, water and fodder, which was distributed to the most vulnerable households. Each

household received food parcels worth R300 per month, and water for domestic use was distributed (Drought Information Bulletin no.1/2004).

At a national level, six of South Africa's provinces have been affected by drought. During 2004-2006, the government allocated R1.2 billion for emergency food at a national level (Drought Information Bulletin no.1/2004). The question that remains is whether such a considerable injection in cash has alleviated communities' vulnerability to drought. This will be presented and discussed in the findings.

In addition to the level of drought and communities vulnerability to droughts, the ability of the communities to respond to drought and other external shocks has been diminished by previous political systems. During colonialism and apartheid, communities' knowledge was eroded by government policies (Bond, 2002, p.64). Decisions on disaster management often ignored the needs and aspirations of indigenous people, and did not provide appropriate support to these communities. The removal of the black population from their land resulted in their being concentrated in areas with no opportunities such as employment and other social and economic opportunities. The areas were often prone to disasters such as floods or droughts, placing the communities into a vulnerable situation of powerlessness and poverty. The concentration of the black population in informal settlements was not only meant to marginalize black population from the mainstream economy, but was also a way of wiping out of the values that were imbedded in African traditions (Bond, 2002). The concentration of people in informal settlements created reservoirs of poverty since the land was often too poor for productive agriculture and there was little work in these areas. Men went looking for work in the mines and urban areas, leaving behind children and women, further degrading the cultural ways of living in which men and women contributed towards the family's livelihoods and a sense of community.

Furthermore, for a long time, traditional practices remained officially outlawed and were not recognized as legitimate practices (Hoppers, 2002:27). In the area of health for instance, in 1974, the Health Act forbade healers not registered with the South African Medical and Dental Council from practicing or performing any act pertaining to the medical profession (Freeman, 1992). In 1982, the Health Act was amended to

include those not registered with the South African Associated Health Services Professions Board (Freeman, 1992). Modern medical practitioners were prevented by ethical rules from referring patients to traditional healers (Freeman, 1992). In 1988, the government prohibited any form of traditional medicine practice and made it illegal; most of traditional healers who performed such practice did so undercover and met with their clients secretly for fear of being victimized by the state law and order (Freeman, 1992).

In addition, under apartheid, the movement of people was restricted, and the land given to people was very poor. The restriction on movement may have limited communities' ability to effectively practice their IKS. In the current government where a major transformation and democratization processes is being implemented, which includes sustainable development built on the knowledge and aspirations of grassroots communities (Department of Science and Technology 2004), more still needs to be done to effectively integrate IKS into public policy (Hoppers, 2002). Furthermore, communities still occupy poor land and solutions are not effective and some are short-term; thus dependency remains. This is particularly evident in Msinga (see Chapter Two).

My assumption is that, regardless of the awareness of the usefulness of indigenous knowledge in developmental process and government's noble idea of incorporating indigenous knowledge in the process of development including disaster management (Department of Science and Technology 2004), there are a number of issues which are still unresolved. These include: limited programmes to combat poverty, ineffective incorporation of IKS into public policy, and lack of provision of basic social services such as water, sanitation, and employment which could help communities maintain their livelihood and remain independent even in drought conditions. For instance, in Msinga, poverty and unemployment levels are high, and infrastructure, social facilities and land productivity is inadequate (Msinga Integrated Development Plan, (IDP) Review 2005/2006 and the Maurice Webb Race Relations Unit (MWRRU), 2007). The prevalence of drought in the area might have serious consequences on these communities as they lack assets and productive capacity. Numerous studies demonstrated that individual or communities' resilience and ability resist to external shocks, such as illness, natural disasters depend on the quantity

and quality of assets, social networks and institutional support (Putnam and Feldstein, 2003 and Narayan, 1999). As will be demonstrated later in the findings, communities in Msinga are poor and lack assets capability and institutional support which could assist in resisting the effects of drought in the area. This will further be discussed in Chapters Five and Six.

The impact disasters have on communities is a result of combinations of many factors which include: socio-economic characteristics of the population; material poverty; lack of adequate assets and livelihoods; poor infrastructure and access to basic services; physical incapability; insecurity in all its forms; and more importantly, poor institutional capacity, not only in responding to disasters but also in addressing other issues of central importance in development (Blaikie *et al* 1994, p.134). The limitations of government programmes and the lack of capacity to eradicate poverty in Msinga raises questions about government's disaster management policy and how it supplements the community's pre-existing knowledge. A combination of indigenous knowledge and government policies on drought can provide rural communities with a variety of options and innovations to deal with drought in the course of making a living. If drought management is to succeed, collaboration between government policies and indigenous knowledge is crucial. This study seeks to determine firstly possible areas of collaboration and secondly, the best ways of tackling and managing drought.

1.4. Aims and objectives of the study

When I heard through the media about the severe drought in KwaZulu-Natal and in Msinga in particular in 2004, I became interested in conducting research in this area. In 2006 I undertook a pilot study. During the pilot study and after discussion with members of rural communities in Msinga, it became apparent that droughts are endemic in the study area and that drought- management strategies are as intrinsic to local livelihood systems as are seasonal-adjustment strategies. While drought seemed to have affected many areas of KwaZulu-Natal, according to stories gathered from people in various areas affected by droughts, Msinga stood to be more affected by drought than any other area in KwaZulu-Natal. The history of

conflict in Msinga - starting from chief Bhambatha² who fought the British rise in taxation in 1906, to inter-tribal conflict in 1922 over the boundaries and finally to political conflict between the Inkatha Freedom Party (IFP) and the African National Congress (ANC) - influenced my interest in doing research in the area. As my research is about communities and government responses to drought, it was important to see how the politics of the past have shaped the current ones and to find out what are the implications to indigenous knowledge systems with regard to drought.

Aims and objectives of the study were:

- a) To identify and understand the role of traditional knowledge in the process of drought management that prevails in Msinga.
- b) To establish how the effectiveness of such knowledge is measured by community members in Msinga.
- c) To investigate available policies and the institutional framework by further demonstrating how such initiatives could assist the rural population at Msinga to adjust and cope with the effects of drought.
- d) To make recommendations that can be applied by the relevant authorities when dealing with drought and disaster management in the affected communities.

1.5. Main research questions

The study explores rural communities' and government's response strategies to drought in Msinga. IK and government policy responses are its points of reference. In order to achieve these main objectives, this study addresses, amongst others, the following specific questions:

- 1. What is the community's knowledge about drought (understanding, perception?)
- 2. What are communities' indigenous knowledge and strategies for coping and managing droughts?

² Bhambatha, was a Zulu chief, who revolted against the British taxation in Natal, in 1906. For more details about chief Bhambatha, visit: http://en.wikipedia.org/wiki/Bambatha_Rebellion

3.What are the government's responses to drought?

4.How effective are the government's responses to drought?

5.Can co-operation between communities' and government's drought management strategies help communities effectively adjust to drought conditions?

1.6. Conceptualization

The choice of the concept was made because of the need to understand the daily realities surrounding life in the settlements (e.g. the culture and life experiences) in relation to drought management by those living in this area, how they perceive and speak about their lives and the possible obstacles in organising themselves.

The intention of this study is to investigate the indigenous knowledge (IK) of members of a rural community in Msinga in relation to drought. The community's approach to drought is grounded in its local rural, social, cultural and human environment. As with other natural disasters and poverty-related problems, the communities draw on their IK and assets to manage external shocks. But what is indigenous knowledge?

A variety of terms have been used to describe this form of knowledge. IK has been described as "local knowledge", "traditional knowledge", "indigenous traditional knowledge", "indigenous technical knowledge", "traditional environmental knowledge", "rural knowledge", "traditional ecological knowledge", and so on. These terms have similar meanings. But while there may be similarities in IKS, indigenous knowledge is specific to communities and the local environment (Mwaura, 2008, pp.21-23). Langill (1999, cited in Mwaura, 2008, p.24) argues that in using the concept of IK "it is not necessary to know if the people in question are the original inhabitants of an area; the important thing is how people - aboriginal or non-aboriginal - in a particular area view and interact with their environment".

Similarly, (Potteir, Bicker and Sillitoe, 2003, pp.15-17) argue that IKS does not only refer to knowledge shared by people in the same environment, but also means the

skills, techniques or survival strategies that people possess. Warren (1991 cited in Mwaura, 2008, p.27) acknowledges that:

Indigenous knowledge provides the basis for grassroots decision-making, much of which takes place at the community level through indigenous organizations and associations where problems are identified and solutions to them are determined. Solution-seeking behavior is based on indigenous creativity leading to experimentation and innovations as well as the appraisal of knowledge and technologies introduced from other societies.

McClure (1989 quoted in Green, 1994, pp.18-24) sees IKS as "that body of accumulated wisdom that has evolved from the years of experience and trial-and-error problem solving by groups of people working to meet the challenges they face in their local environment, drawing upon the resource they have at hand". Grenier (1998), on the other hand, views IK as unique, traditional and local existing within and developed around specific conditions and a specific group in a particular geographical location. Similarly, The National Academy of Sciences (2007 in Mwaura, 2008, p. 21) defines IK as "specific systems of knowledge and practice, developed and accumulated over generations within a particular cultural group and region, and as such are unique to that group and region".

The International Institute for Rural Reconstruction (IIRR) (1996, p.7), considers IK as that knowledge "that people in a given community have developed over time, and continue to develop, based on experience, often tested over centuries of use, adapted to local culture and environment, which are dynamic and changing". Putting IKS into context, it can be understood as a tool and a combination of skills that help communities or households to withstand uncertainty, and adjust to changes in living conditions. Potteir, Bicker and Sillitoe (2003, pp.15-25) are convinced that IKSs play a central role in developing the self-reliance of a society or community, and have been recognized as important by many disciplines in the development sector. The National Research Council (NRC) (1991, p.45) considers IK to be a complex set of knowledge and technologies existing and developed around specific conditions of populations and communities located in a particular geographical area. Such knowledge is built on material and non-material assets which enable individuals or communities to adjust to changes in their living conditions.

In relation to communities' indigenous disaster management strategies, Save the Children (UK) (2000) claims that to clearly understand IKS one needs to take into account daily survival strategies as this enables one to make sense of the complex ways in which individuals, households and communities achieve and sustain their livelihoods and the likely impact of an external shock. Beyene (2003, p.7) contends that indigenous drought management strategies involve a variety of mechanisms, resources management such as stocking fodder for livestock during good times in preparation for dry seasons, building up food stocks, the effective use of natural resources, divestment of savings, greater and more efficient use of the market system and strengthening social networks for the exchange of goods and services during drought periods.

The study referred to above under the auspices of the United Nations Environment Programme in 2008, in Kenya, Tanzania, South Africa and Swaziland revealed that there were four ways that communities developed skills to manage natural disasters, and sustain and supplement livelihoods in times of uncertainty. Chiefs as central organizers of communities in most African rural areas, mobilize group labour to build communal dams, and establish reciprocal grazing arrangements with more distant communities for access to their resources in dry years. Some chiefs even mobilized work forces to work in the mines in South Africa, as in the case of Swaziland, to bring money home which could assist families in times of drought. These traditional contingency mechanisms were recognized as being helpful during drought stress periods (Mwaura, 2008).

In India, communities developed six strategies to manage drought:

1. Reciprocal grazing arrangements with more distant communities for access to their resources in the dry years.
2. Adjustment of flock sizes and stock rates to match available natural feed resources.
3. Keeping extra animals that can be easily liquidated in a drought, either for food or cash.
4. Investing in digging wells, cisterns and water harvesting systems.

5. Diversification of crops and storage of surplus grains, straw and forage as reserve in good rainfall years.
6. Income diversification into non-agricultural occupations (Wilhite, 2008).

Some communities have a vast pool of knowledge on prediction and early warning signs that help them prepare and manage drought effectively. For instance, the Luo community in the Lake Victoria basin in Kenya had a large number of climate monitoring indicators that enabled them to tell when it was the right time to start planting in anticipation of the rains or to preserve and store food in anticipation of a dry season. These indicators include observation of the behavior of animals, birds, reptiles, amphibians, insects, vegetation and trees, winds, temperatures and celestial bodies (Mwaura, 2008, pp. 20-24).

In line with climatic uncertainties, communities have also devised a variety of measures such as growing drought-resistant crops. The Luo shifted from maize to cassava and early-maturing indigenous crop varieties, wetlands cultivation, and livestock diversification. These strategies have enabled them to survive climatic hazards with little or no support from the outside world (Mwaura, 2008, pp.20-27). In other words, over the years, while a particular group deals with its survival, it develops practical ways to deal with problematic situations. The resources used are those locally available and what “works” is recorded as a valuable acquisition and transmitted from generation to generation (Kamara, 2007).

In pre-apartheid South Africa, communities adopted a variety of mechanisms to predict, prevent and manage drought. A study conducted in 2003 by Dartell and Torr in Ntandabantu village in rural KwaZulu-Natal identified three mechanisms that have been adopted by the communities to predict, mitigate and cope with drought. Prediction of drought involved the observation of animal behavior, such as the migration of birds and the appearance of non-indigenous vegetation. Drought mitigation strategies involved the migration to urban areas in search of work or migration to other areas not affected by the drought. It is believed that migration has played a very critical role in mitigating the effects of drought. The performance of ritual and praying to ancestors has been identified as an old but important way to

predict, mitigate and cope with the impact of external shocks including drought (Dartell and Torr 2003, pp.67-72).

While the above strategies have been proven to be effective in mitigating or preventing drought, it is difficult and beyond the scope of this study to debate the validity of this knowledge. The fact of the matter is that communities have relied on this knowledge for generations to predict and prevent natural catastrophes.

In this context, IK can be seen as an integral part of a group or community's culture. However, culture itself is another subject of debate which encompasses many aspects of life, some of which are beyond the scope of this study. IK is part of culture and embedded in culture. The embodiment of IK in culture has an internal structure which allows adaptation in changing living conditions, such as social, cultural, political, economic or biophysical (Haran, 1991, p.174). Culture may be defined as "the way of life which a group of people has worked out to enable them to cope with problems of daily living in a particular environment". Culture has different components such as ways of thinking, feeling, believing and behaving. De Haan contends "there is in fact, no aspect of our lives which is not influenced by the culture to which we belong" (de Haan, 1998, p.37). Similarly, Clark (1998) contends that there are specific cultural practices related to diet, food and the environment and its management. All cultures have prescribed practices aimed at the promotion of well-being or restoring life when sudden shocks strike.

Separating indigenous and cultural knowledge may be difficult as the two are intertwined. In the African context, IK is often associated with the wisdom of ancestral times, the residue of centuries of adaptation to an environment. Traditional environment management is based in African cosmology which includes the supernatural (Mwaura, 2008, p.21).

Despite IKS being proven to be effective in some instances of development, poverty alleviation and disaster management, it faces challenges. The threat that faces IKS systems is that it is often marginalized and lost in modern times due to the segmentation and amalgamation of cultures and the traditional institutions that support it. The proponents of IKS unanimously agree that ideological perceptions

relating to IKS are shrouded with negativity and associated with backwardness despite the fact that they are still largely maintained and practiced by their custodians. Modern development ideology can see IKS as an obstacle to development if not something that retards it (Seepe, 2001 cited in Ngubane, 2006, p.14).

As Mwaura states, an understanding of disaster management-related IK and the difference between it and the modern disaster management approach is essential for disaster planners and programme implementers, if plans and programmes are to be culturally appropriate and therefore effective. Such knowledge is available to planners, implementers, researchers and others through approaches that involve co-operation with grassroots communities (Mwaura, 2008). The objective, he adds, is to re-work disaster management paradigms to make them more responsive to indigenous values, beliefs and expectations (Mwaura, 2008). This study hopes to contribute to such an initiative.

1.7. The Significance of the study

This study is conducted in the post- apartheid era, when South Africa is undergoing a radical transformation that includes the incorporation of IKS into development approaches, thus, the promotion and protection of IKS are part of this transformation (Department of Science and Technology 2004). The new government dispensation embraces the concept of sustainable development built on the knowledge and aspirations of grassroots communities (Ntuli cited in Hoppers, 2002, p.53). The promotion and protection of IK is part of the African Renaissance that aims to build a deeper understanding of Africa, its languages and its methods of development by indigenous peoples (Hoppers, 2002, p.67). African Renaissance is conceptualized as the rebirth, rediscovery, renewed commitment and achievements of the African continent. Usually it begins with a fresh sense of personal identity, whilst touching all areas of human endeavour; political, economic, social, technological, environmental, and cultural. The notion of African renaissance has been espoused by earliest African leaders such as Kwame Nkruma of Ghana, Chief Obafeni Awolowo of Nigeria, Njomo Kenyatta of Kenya, Julius Nyerere of Tanzania, South African Chief

Albert Luthuli and recently embraced by the former South African President Thabo Mbeki.³ Thus, understanding IKS fits into the broader reconstruction and development of strategies in South Africa. It provides a new platform for self discovery. Problems are identified and solutions are built on knowledge of grassroots communities.

Several global imperatives also underpin the need for renewed attention to IKS. Key international agencies such as the World Health Organization (WHO), the United Nations Environmental Programme (UNEP), and the United Nations Development programme (UNDP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), have conventions or mandates on the issues of environment, indigenous and traditional knowledge:

...and of the rights of indigenous people worldwide. The issues of diversity, and especially biodiversity, and the role of indigenous communities in the protection and utilization of the natural products around them, were elucidated during the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro (Hoppers, 2002, p.257).

Regardless of the awareness of the usefulness of IK in developmental processes, governments and the UN's noble ideas (UNDP, 2005) of incorporating IK into the process of development, there are number of issues which are still unresolved and to which this study intends to contribute. As discussed earlier, the study is about identifying policies and IK. Combining IK and government policies on drought can provide rural communities with a variety of options and innovations to deal with the challenges of drought in the course of making a living.

The findings of this study will assist in identifying strategies that will promote the incorporation of IK into disaster management policies, identify the main difficulties which restrict the promotion of IK in disaster management in South Africa and suggest solutions to overcome such obstacles. The findings from this study will also help ensure that any proposals for change in disaster management practices are relevant to communities' situations and aspirations. The findings will further provide up-to-date information for researchers in the field of IK and in disaster management.

³ For more details on the African renaissance, see Okumu, 2002. *The African Renaissance. History, significance and strategy*. Asmara, Eritrea. Africa World Press.

Lastly, this study will help close the gap in knowledge and determine possible areas of collaboration between communities' IK and official institutions' response to disaster and suggest the best ways such an undertaking could be achieved. Given the adverse possible consequences of drought on rural communities, it is important that planners, designers and policy-makers involve themselves in mitigating efforts. If rural development and service delivery strategies are to be sustainable and are to succeed in these areas, a deliberate initiative to unearth and address the problem of drought and engage in decisive proactive measures is imperative. It is therefore important that a study of this nature be carried out so as to analyze the existing situation and formulate appropriate strategies.

1.8. Research Design

Qualitative interpretive approach using mixed data collection methods was employed in this study. The key focus of qualitative interpretive research are subjective perceptions and understandings, which come from experience, objective actions or behaviors, and the context in which all this occurs (Ulin, Robinson, Tolley, & McNeill, 2002). Qualitative interpretative method offers systematic, controlled, valid and rigorous establishment of associations of methods that permit the accurate prediction of outcomes under a given set of conditions (Kumar 2004, p.16). In this study qualitative interpretative approach using mixed data collection methods, allowed the researcher to capture and understand more fully, the interpretation of experiences and variations in participants responses judging from their own context and experiences (Ulin, Robinson, Tolley, & McNeill, 2002). Details on the research design are in Chapter Four.

1.9. Thesis Structure

Chapter One: Outlines the research topic to be investigated and highlighted the major research questions, objectives, aims, study design, conceptual definition, and limitations for this thesis.

Chapter Two: provides background information on the study area. This Chapter covers the study area's geographical location and ecological conditions; the population and its socio-economic status.

Chapter Three: provides a literature review on drought and indigenous knowledge.

Chapter Four: Provides a theoretical framework upon which this study is built.

Chapter Five: outlines the methodology used in this study.

Chapter six: constitutes the core findings of the study. It outlines the findings of the community survey, and group discussions and provides analysis of the findings.

Chapter Seven: examines South Africa's government disaster management policy and Acts, and looks at how these policies and Acts have been translated into action to provide relief from the droughts that persists in Msinga. Most importantly, the relevance of policies and Acts to communities' drought indigenous knowledge systems and their effectiveness to drought in Msinga is examined.

Chapter Eight: Includes discussion of the findings from the people in Msinga and of government strategies, recommendations and conclusion

CHAPTER TWO

BACKGROUND INFORMATION ON THE STUDY AREA

2. 1. Introduction

This chapter provides the basic information needed to set the context in which this study took place. It covers the study area's geographical location and ecological conditions, the population and its socio-economic status.

2.2. Msinga Field site and prevalence of drought

The study is located in Msinga Local Municipality which is part of the UMzinyathi district municipality in KwaZulu-Natal. It is situated in the northern part of the province, and is among four local municipalities of UMzinyathi and covers 2504 km² of land. Msinga is considered to be the poorest and most underdeveloped area in the district in terms of infrastructure and social facilities (Msinga Integrated Development Plan (IDP), 2005/2006). Msinga is comprised of six areas of Traditional Authority namely, Qamu, Mchunu, Bomvu, Ngome, Mabaso and Mthembu in an area of 2 504 km² (Msinga IDP Review, 2005/2006). It has a population of 170,000 (Census, 2001) resulting in a population density of 67 people/km. Two in five (42%) persons are unemployed and half of the population does not have access to basic water services (Msinga Integrated Development Plan, 2003 and MWRRU, 2007). The area has the second highest levels of HIV/AIDS infection in UMzinyathi (Msinga IDP Review, 2003).

Msinga is predominantly mountainous, with rolling hills with loose stones and rocks, which make it difficult for farming. According to the MWRRU (2006) and Institute of Natural Resources (2007), only 40% of the land has the potential for farming but subsistence farming remains the major economic activity in the area. Added to this is the limited capacity of the land for productive agricultural development due to poor

soil quality, adverse climactic conditions, and poor agricultural practices, such as overgrazing (Msinga Integrated Development Plan, 2003). Despite the large irrigation potential covering up to 40% of agriculture practice, the area is subjected to water shortages, high soil erosion and low land carrying capacity (Institute of Natural Resources, 2007).

A study conducted by the Institute of Natural Resources in 2007 reveals that Msinga is characterized by an annual rainfall between 600-700mm. In terms of international standards, this indicates drought of high magnitude (Institute of Natural Resources in 2007). The South African Weather Services Indicator (2008) demonstrates that the northern part of KwaZulu-Natal, which includes Msinga, is subject to dry conditions. The erratic nature of rainfall in most of Msinga makes it risky to invest in the production of crops such as maize, vegetables and sorghum which are the main sources of food in the area. Msinga suffers intermittent and periodic droughts, with the last officially recorded drought occurring in 2004 (Drought Information Bulletin No 1/2004). However, despite the last drought to be officially recorded in the area, communities in Msinga continue to experience the effects of drought after this date and its affects are severe (Personal interviews with members of Msinga, 2007, 2008, 2009, 2010). From statements collected from villagers, it is apparent that drought in Msinga has become part of daily life in the area (Researcher personal interviews with members of the community, 2007, 2008, and 2009). The extent and the impact of drought are discussed in more detail in the findings in Chapter five.

There is reason to believe that drought conditions in Msinga are aggravated by the already existing economic and social situation in the area. The MWRRU (2006), reports that Msinga has high levels of illiteracy reaching up to 79%. According to the same source, 95% of households in the area rely on wood as fuel for cooking which places a burden on the already vulnerable environment. There is no doubt that droughts have complex social economic consequences for members of Msinga communities and trigger vulnerability in the livelihood of these communities.

Msinga Local Municipality is found in the northern part of the Province of KwaZulu-Natal and is one of the local municipalities of the Mzinyathi district municipality. It is bordered by Nquthu and Nkandla Local Municipalities in the East, Umvoti and Msudusi in the South and Indaka in the West (Msinga IDP. 2004/2005).

[illegible]

Figure 1: The Province of KwaZulu-Natal in South Africa showing the Msinga Local Municipality (Source: Produced by Njoya, Department of Geography, University of KwaZulu-Natal, 2011)

Figure 2 below shows the study areas and surrounding local municipalities.

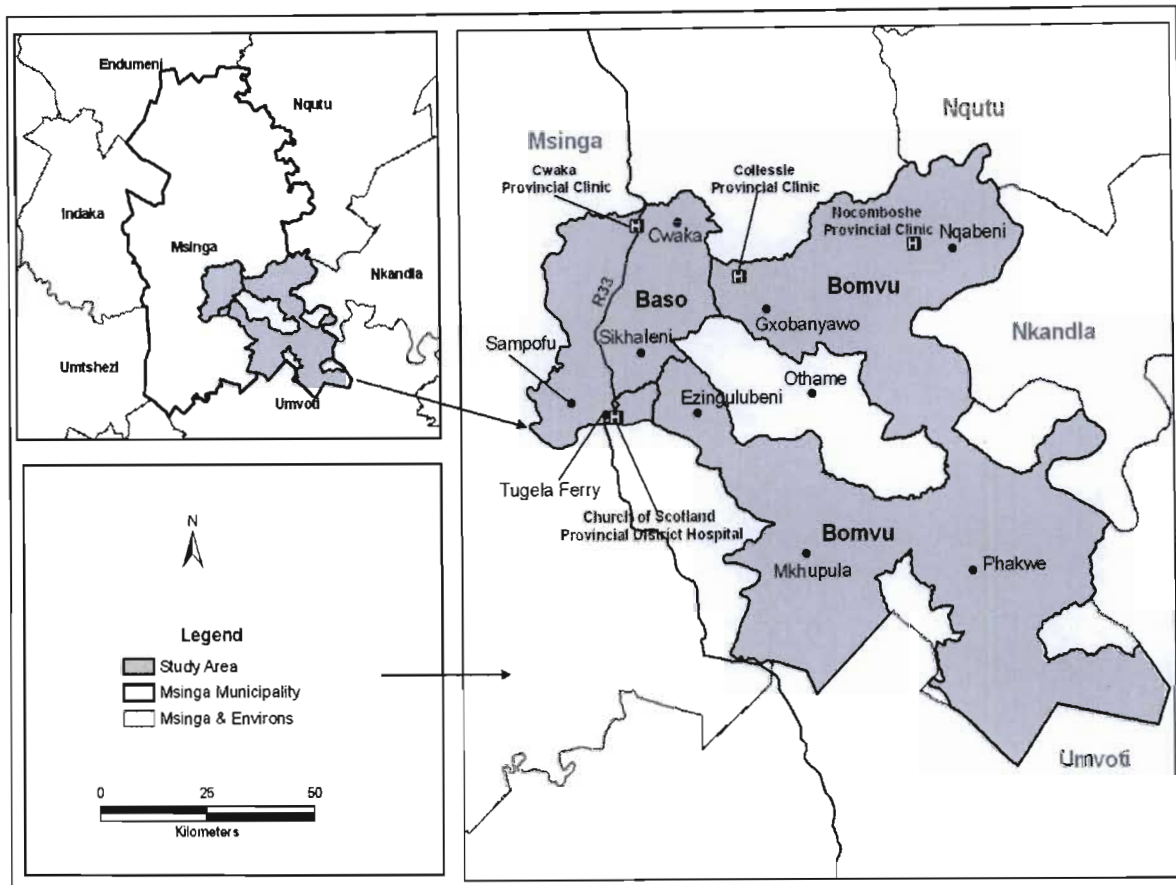


Figure 2: The Msinga Municipality and neighbouring local municipalities (Source: Produced by Njoya, Department of Geography, University of KwaZulu-Natal, 2011).

2.4. Ecological conditions of Msinga

The weather in Msinga consists of extreme fluctuations with intense heat in summer and severe cold with frost in winter in the north, but the southern lowlands have milder weather (MWRRU, 2007 and Msinga IDP Review, 2004/2005). The Bio-resource Report of the Department of Agriculture defines the weather in Msinga as hot in summer with a mean of 21 to 23 degrees centigrade and a maximum of 27 to 29 degrees and cold in winter with a mean of 13 to 16 degrees and a minimum of 4 to 8 degrees (Department of Agriculture, 2000). It further defines the area as having

mild rainfall in summer (between 82mm and 122mm median rainfall per month) and none in winter (2mm to 11mm) (Institute of Natural Resources, 2007).

The common natural vegetation is shrub trees, aloes and grassland on the rolling mountains. There is generally little flat arable land for farming (Msinga IDP Review, 2004/ 2005 and Modi, 2003). However, the poor soil quality is defined as of very low potential and non-arable except the upland area southwest of Tugela Ferry and the land requires careful professional management as it is prone to degradation/soil erosion because shallow soils exist in around 60% of the land (Institute of Natural Resources (2007).

2.5. Population data

Percentages of population groups other than Africans⁴ have not been worked out as they constitute an insignificant proportion. Africans constitute over 99% of the total population in Msinga Local Municipality. The following table illustrates the nature of the population in Msinga (Census 2001, cited in MWRRU, 2007).

Table 1: Population age in five-year intervals

Age	Total	Male	Female	African	Coloured	Indian	White
Totals	168,031	70,245	97,786	167,686	103	95	147
Percentage	%	%	%	%	%	%	%
0-4	15	18	13	15	-	-	-
5-9	17	20	14	17	-	-	-
10-14	16	19	13	16	-	-	-
15-19	13	15	11	13	-	-	-
20-24	7	6	7	7	-	-	-
25-29	5	4	6	5	-	-	-
30-34	4	3	5	4	-	-	-
35-39	4	3	5	4	-	-	-
40-44	3	2	4	3	-	-	-
45-49	3	2	4	3	-	-	-
50-54	3	2	4	3	-	-	-
55-59	2	2	3	2	-	-	-
60-64	2	1	3	2	-	-	-
Over 65	6	3	8	6	-	-	-

⁴ Africans - meaning in this study aborigines of Africa, or “black” people, while “coloured” means someone born of two parents from different racial groups, or groups such as Malaysians who came to South Africa as labourers.

Source: Statistics SA Census 2001 adapted from MWRRU, 2007

Table 1 above indicates that there is high gender disparity in the Msinga population with females constituting 58.2% and males 41.9%. This deviates from the national norm of 52.2% to 47.8% respectively. Most men work in the cities and there have also been many tribal wars which would have taken a toll on males in particular (MWRRU, 2007). The Municipality has an excessively large young population with 46% comprising children up to the age of 14 years compared to the national mean 32%; and almost three-fifths (59%) of the population under 19 years of age (see Table 1). In the period 1996 to 2001, the total number of other race groups resident in the area diminished while the African population increased (MWRRU, 2007). This resulted in the increase of a high level of unemployment in the area: some jobs available in the area were provided by white population, such as seasonal farm employment.

2.6. Legacy of the policies in Msinga

Msinga was formerly part of the homeland known as KwaZulu. Homelands, also known as “Bantustans” or reserves, were territories set aside for black inhabitants of South Africa during the apartheid regime, abolished in 1994 (de Wet, 1995)⁵. In socio economic terms, Msinga as a whole is one of the least developed areas in the district municipality of UMzinyathi. Fewer resources were and still are allocated for the social and economic development of the area. In general, the population is faced with severe unemployment, poverty, illiteracy, low wages, housing shortages, and inadequate sanitation and infrastructure (MWRRU, 2007). All these conditions make the area a reservoir of poverty. Outgoing migration is high. Selling of agricultural surpluses and infrequent informal activity are the main sources of income (MWRRU, 2007 and Msinga IDP, 2004/2005).

⁵ See Appendix 5 for a story of a Msinga man during the homeland days.

2.7. Inter-tribal and political conflict in Msinga

Inter-tribal fighting in Msinga has a long history. Inter-tribal fighting can be traced back from 1922 as result of disputes over land and boundaries among the main tribal groups of Mchunu and Mthembu. Before 1910, Msinga was situated within the magisterial district of Helpmekaar. In 1910 the district was split into different independent districts, one being Msinga. The establishment of Msinga raised disputes over the boundaries among the chiefs and different tribes, mainly between the Mchunus and Mthembus. In 1922, tension over boundaries was intense, which resulted in inter-tribal fighting between the Mchunus and Mthembus. Each group had support from smaller tribal groups. In one of the disputes over the land, on 25 April 1922, a man from the Mchunu tribe was “stabbed and thrown into the hill”. After a few days a fight broke out between the Mthembu and Mchunus, finally resulting in the killing of 24 men from the Mthembus, most of whom were leading headmen and indunas or (head of villages). 100 huts were burnt down; Mthembus retaliated by killing seven men from Mchunu. The fight between the two factions prompted the KwaZulu homeland government to intervene (Clegg, 1979).

The government's intervention did not bring an end to the conflict, rather it perpetuated the cycle of violence and hatred among the tribes in the areas (Clegg, 1979). The failure of the state to bring an end to the conflict and to bring lasting solutions to the problem of land led to polarization and the rise of small tribes with new claims over the control of the land. In 1944, generalized fighting broke out resulting in the loss of hundreds of human lives, losses of goats and cows. Hundreds of huts were burnt down and many people had to seek refuge in neighbouring tribal areas such as Nkandla and elsewhere (Clegg, 1979). After 1944, the fight remained at a low scale, however, the hatred and division among the tribes remained obvious in all areas of collaboration (Clegg, 1979). Grazing land remained a much contested area, which in some instances resulted in deadly violence (Conversation with Mr. Xaba, 2009). Between 1955 and 1960 there was serious drought which affected the entire area of Msinga. As result of the competition over scarce resources, the dispute over boundaries erupted again, leading to fighting, this time not only between the Mchunus and Mthembus tribes, but a generalized fight (Conversation with Mr. Xaba,

2009). The central government of Natal had to intervene and the conflict brought to an end.

In 1975, there was an active political revolution among the black population in which they began fighting against the apartheid system. In the process of fighting against the apartheid system, the two opposing political parties, African National Congress (ANC) and the Inkatha Freedom Party (IFP), differed on various issues. Inter-tribal conflict turned into political conflict. In 1976, conflict between the ANC and the IFP broke out. Death and losses of properties were recorded from both sides. In 1985, violent conflict again broke out between the main political factions and again in 1994 (MWRRU, 2007). After the end of apartheid by 1994, Msinga remained a contested area between the ANC and IFP. Inter-tribal conflict re-emerged and isolated cases of violence were recorded in 1999 and 2008. Division between communities and scars of the past remain fresh in the memories of many. Mistrust among the communities and government structures is visible in many areas of cooperation; many of participants during the research process expressed knowledge of the lack of trust among communities.

2.8. Cultural beliefs and ancestors in Msinga

The Msinga local municipality is a stronghold of Zulu culture and tradition, and is dominated by the Mchunu and Mthembu tribes, both of which are believed to be strongly committed to their traditional customs. The interaction and relationship between the living and the dead is very strong among the community of Msinga. A common belief in the community of Msinga as elsewhere in KwaZulu-Natal is that the life of the living is empty and meaningless without contact with the living and dead (Formal conversation with elderly men and women in Msinga, 2009). The life of the living is meaningless without connection with those who have passed on (Formal conversation with elderly men and women in Msinga, 2009). There is a common belief among the Zulus that many of the social, natural and economic ills and good that happens to the living are governed by how the living interact with their dead.

The following quote is from one of the elders during an informal interview which gives a view on how relationships between the living and dead are defined:

Those who pass on are very important in our lives and we must always pay respect to them, because they are mediators between us and God. Everything we need, we have to send them, so they can go and ask to God to provide for us or protect us from bad things could happen in our lives (Elderly man in Msinga, 2009).

Among the Zulus, there are different views on who really is an ancestor and who should intercede on behalf of the living. While the views may vary, the common belief is that ancestors cannot be young, neither a woman, they usually are people in their mid-years or elderly males. Old age is therefore respected and revered as sacred and a blessing. It is a common speech for the Zulus to refer to the elderly grandfather or the great grandfather as an ancestor. Death at an old age is regarded as a crown of the earthly life. It is simply a form of passing on to the other form of existence in the spirit world (Conversation with elderly woman in Msinga, 2009).

Regarding inviting the dead to aid the living, a beast must be slaughtered. An invitation is directed to the spirit of the dead person, this invitation being done by an elderly man. The spirit is invited to come home and look after the descendants. At the entrance of the kraal, the spirit is welcomed to the household. The ancestors are invoked at the back of the cattle fold, considered to be the sacred place or centre and then the deceased becomes the protector and defender of his descendants against any evil (Conversation with an elderly Zulu man in Msinga, 2009).

2.9. Gender and land ownership in Msinga

Land tenure in Msinga as elsewhere in KwaZulu-Natal is socially embedded. This means that the rights and obligations are often defined primarily through social relationships and membership of a variety of social units, including families, households, kinship groups and communities. Thus, the social organization is a key to understanding land tenure (Cousins 2007 and 2008). Under apartheid, whites owned land but land was communally owned by the black population in the rural areas. In urban areas, blacks were consigned to "townships" near to the place of

employment and allocated housing in the form of hostels or family dwellings. (UN, 1997).

The common and underlying rule in terms of land allocation in Msinga is that married people with children are allocated land by the community leaders (chiefs). This means that married people can have access to the resources required to support their families. Single people cannot be allocated land, and therefore must reside with either their parents or other family members (Formal conversation with members of Msinga, 2009). Single women and females who are not spouses are not entitled to land ownership and therefore have to acquire land through relatives. This customary law is applied when it comes to women and land ownership (Formal conversation with members of Msinga, 2009).

2.10. Livelihoods and income generation

The livelihoods of the people are derived mainly from subsistence agricultural farming and extensive herding, pensions and remittances and informal trading (MWRRU, 2007 and personal interviews with members of the community, 2008, 2009, and 2010). Stock farming is practiced extensively in Msinga as a cultural activity and not for commercial purposes (Personal conversation with members of Msinga, 2008, 2009, 2010). Home gardening, although not a well-established activity because of limited water supplies and dry conditions in the area, was regarded as a potential income-generating activity for some households (Personal interview with members of the community in Msinga, 2009). Livestock is more of a status symbol than of economic benefit and has particular religious and cultural importance such as rituals (MWRRU, 2007 and interviews, 2008, 2009). It is only under extreme hardship that stock owners will sell their animals (Informal discussions with members of Msinga villages, 2008, 2009).

Staple crops include maize - by far the most important crop - sweet potatoes and groundnuts (Modi, 2003 and personal interviews with member of the community of Msinga, 2008, 2009). Other crops include sorghum, millet, pumpkins, melons, beans, tomatoes, and cabbages (personal conversation with member of the community in

Msinga, 2008, 2009 and Modi, 2003). Generally, however, the soil is rocky and infertile and the crop yields are very low. People are unable to support themselves on the food they grow (personal interviews with the community members of Msinga, 2008, 2009 and 2010). Local employment is very limited.

A few people are employed formally at the local schools, clinics and hospital. People employed in agriculture are those working in commercial farms in Dundee (Personal interviews with members of the community in Msinga, 2008, 2009). Becoming a migrant labourer is common among young males, who leave to look for a job in the cities (IRIN, 2007 and informal discussion with members of Msinga, 2009). The informal sector consists of survivalists and includes trading activities in fruit, snacks, and homemade foodstuffs such as fat-cakes sold at schools, along the road and at the pension pay-points (Interviews with member of the community in Msinga, 2008, 2009 and researcher observation, 2008, 2009 and 2010). The quality of life is very poor considering the activities that have to be undertaken in order to generate a sustainable livelihood, with the limited commodities and services that the community requires for an acceptable standard of living. This will further be explored later.

2.11. Housing

Housing consists of mainly traditional mud huts covered by grass roofs. There is also some mud housing covered by metal sheet roofing. The average house has a detachable door that is removed during the day for ventilation and better lighting and replaced in the evening when it is time to go to bed. Most of the houses are located up the hills, inaccessible by road.

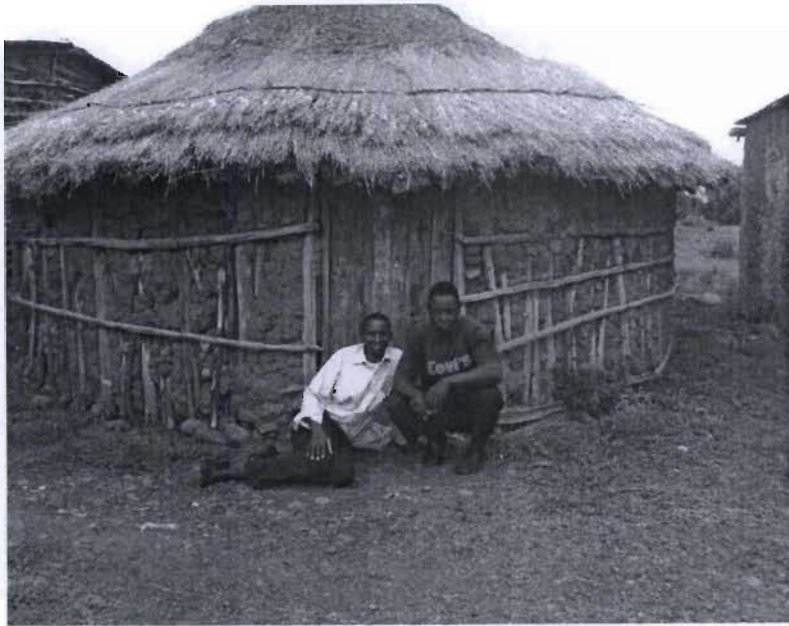


Plate 1. The researcher (I) with the headman sitting in front of a traditional house

A homestead is a family-based residential dwelling(s), animal units (e.g., kraal⁶, chickens) and adjoining tracks of land. Homesteads house a man, his wife(s) and children and perhaps some relatives. Cooking and warmth is generated from firewood. Cooking is done mostly outside or in one of the huts which is usually old and dilapidated. The average family size in Msinga ranges between three and six family members with four and five member families being the most prevalent (MWRRU, 2007). Smaller families are more numerous than large ones (families with nine to 10 members) with diminished chances of distribution of labour within the family for household chores like collecting wood, farming and fetching water. This is shown in Table 2 (MWRRU, 2007).

⁶ Kraal – cattle/goats enclosure.

Table 2: Households by Population Group

Household size	Totals	African	Coloured	Indian	White
Totals	32,507	32,392	30	27	58
Percentages	%	%	%	%	%
1 family Member	10	10	43	11	10
2 family Members	11	11	13	11	47
3 family Members	13	13	13	-	16
4 family Members	14	14	-	22	17
5 family Members	14	14	10	22	5
6 family Members	12	12	-	11	-
7 family Members	9	9	-	-	-
8 family Members	6	6	10	11	-
9 family Members	4	4	-	11	5
10 family Members	7	7	10	-	-

Source: Statistics SA Census 2001 adapted from MWRRU, 2007

2.12. Services

2.12.1. Roads

Msinga enjoys the advantage of having a major road (R33) traversing the whole Municipality in a north-south direction (IDP Review, 2008/2009). This provides the area with a viable corridor along which development can be planned. The main rural road, R33, also provides the only link between the commercial centres of Pomeroy, Tugela Ferry and Keats Drift within Msinga (IDP Review, 2008/2009). However, this was the only tarred road in the Municipality; the rest of the roads were not tarred (IDP Review, 2008/2009). Taking into account that Msinga is mountainous, the gravel roads are not only a hazard in rainy weather, but most of them cannot be used at all (Personal communication with members of Msinga villages, 2008 and 2009). During the course of field research, when the researcher was interested in finding out how people get around for their daily activities, the respondents affirmed that most of the people in the area walk long distances before they reach the main roads.

2.12.2. Running water

Almost two thirds (63%) of the people in Msinga use unclean water from stagnant pools/dams and rivers (Msinga IDP Review, 2004/2005 and MWRRU, 2007). If water

from other sources and unprotected springs are also taken into account, the risk of using unsafe water goes over 70% (almost three- quarters of the total population) (Msinga IDP Review, 2004/2005 and MWRRU, 2007). Members of the community have to travel considerable distances to get water from remote wells or rivers (MWRRU, 2007 and personal communication with member of the community in Msinga, 2008, 2009 and 2010). Women and children are responsible for fetching water, which adds more burdens on women who are already caring for other household needs. Potable water facilities such as taps are not available. Sanitation facilities are non-existent or very rudimentary, with potential risk of water contamination (Personal observation and formal discussion with members of the community, 2008 and 2009). A few of households fetch their water from a community stand-pipe or a water vendor, with a daily payment in the latter instance (MWRRU, 2007 and personal conversations with member of the community in Msinga, 2008, 2009 and 2010). Over four-fifths of the households have no access to healthy sanitation; they make use of pit latrines, the bucket system or the open veldt (MWRRU, 2007).

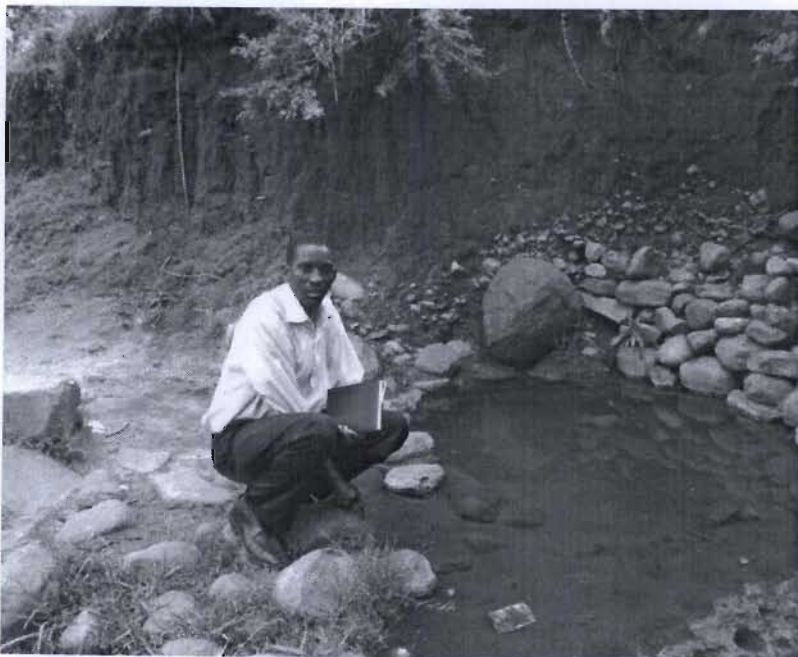


Plate 2. The researcher at a dying spring where community members from Cwaka, one of the municipal areas, fetch water.

2.12.3. Electricity

Five percent of the households in Msinga enjoy the convenience of having electricity, gas or solar heating as fuel for heating (Msinga IDP Review, 2004/2005). Out of the rest of the households (95%), 85% use wood as a source of fuel for heating (Msinga IDP Review, 2004/2005 and MWRRU, 2007). The fact that electricity is available, but that the majority of the population do not have access to it is attributable to the lack of service delivery in the area, which translates into a lack of government commitment to equally distribute resources to the communities. A local official argued that the lacks of financial and skilled human resources are obstacles in providing the electricity to the communities. Homesteads are separately distributed making planning a challenge as well (Formal discussion with a local official, 2008).

2.12.4. Refuse Removal Service

The refuse removal service in Msinga is almost non-existent with a 2% uptake. The rest of the service is either communal (1%), privately-owned service (44%) or simply non-existent (52% non-access) (Msinga IDP Review, 2004/2005 and MWRRU, 2007):

Monitoring to prevent environmental degradation is indicated in a Municipality with more than half (52%) of its households having no access to refuse disposal. This means that 17,112 households do not have a method of refuse disposal. In other words, refuse from these households is left to litter the environment (MWRRU, 2007, p.16).

2.12.5. Telecommunications

Almost thirty percent of the households in Msinga have access to telecommunications such as mobile phones and fixed lines (MWRRU, 2007). The other thirty percent of households can access telephone at a walking distance from home (IDP Review, 2008/2009). The rest of the households, almost on forty percent, have no access at all to this service (IDP Review, 2008/2009).

2.13. Education

According to the recent Municipal IDP review, there are 170 schools in Msinga, serving a school-going population of 61,605 pupils in Msinga. This would indicate that 14,000 children between the ages 5 to 19 years are not attending school (ID Review, 2008/2009. p10).

Table 3: Education Level attained by over 20-year-olds

Level of Education	Total	male	Female	African	Coloured	Indian	White
Totals	67,299	20,389	46,910	67,054	58	66	121
Percentages	%	%	%	%	%	%	%
Not applicable	-	-	-	-	-	-	-
No schooling	68	58	72	68	-	-	-
Some primary	11	13	10	11	-	-	-
Complete primary	3	4	2	3	-	-	-
Some secondary	11	15	9	10	-	-	-
Std 10/Grade 12	6	8	5	6	-	-	-
Post Matric	2	3	2	2	-	-	-

Source: Statistics SA: Census 2001, adapted from MWRRU, 2007

More than three-quarters (79%) of the population in Msinga is functionally illiterate and over two-thirds (68%) have no schooling at all. Only 2% of the population has gone beyond high school level: in effect this means that only 19 percent of the population over 20 years old is functionally literate (MWRRU, 2007, Table 3 above).

Low skills levels are commensurate with the lack of functional literacy. Taking into account the gender split in Table 1 of 42% males to 58% females, the reversed discrepancy of 18% to 51% (males to females) of people over 20 years who have no schooling indicates that females are disadvantaged by not having an opportunity to attend school. A low level of school attendance for girls is mostly due to parental decisions and also influenced by cultural beliefs. For instance, during focus group discussions, it emerged that boys are given priority for education as they will get married and have the homestead. The common belief is that girls have to take responsibility of the households. It is also commonly believed in the area that educated women have no sense of housework and therefore girls should stay home and take care of the household (Formal discussion with members of Msinga, 2008 and 2009).

Table 4: Education Institutions attended

Education Institution	Total	Male	Female	African	Coloured	Indian	White
Totals	87,077	41,827	45,250	86,989	45	24	19
percentages	%	%	%	%	%	%	%
No Schooling	31	27	35	31	36	13	21
Pre-school	3	1	2	3	7	13	-
School	66	70	63	66	58	75	79

Source: Statistics SA: Census 2001, adapted from MWRRU, 2007.

Table 4 above indicates that almost one-third (31%) of people of school-going age (five to 20 years) are not schooling and a little less than one-tenth (9%) of the total number of children under five years are in pre-school. Considering the high proportion of people of school-going age who are not in school it stands to reason that the large number of children of preschool-going age are not a priority, more so as preschool services are a voluntary community service and not readily accessible. Preschools service providers find it difficult to access subsidies in rural areas (MWRRU, 2007). The higher proportion of females not in school indicates the lower level of concern in educating the girl child; and this is further confirmed in the proportion of females in school (Maurice Webb and Race Relation, 2007).

2.14. Employment and unemployment

There is a huge gap between the proportion of economically inactive people who constitute more than two-thirds of the work force (71%) and the people who are employed. Just over one-twentieth of people are employed (6%) as noted in the following Table.

Table 5: Employment status

Labour force	Total	Male	Female	African	Coloured	Indian	white
Totals	80,007	28,989	51,018	79,778	65	59	105
Percentages	%	%	%	%	%	%	%
Employed	6	8	6	6	-	-	-
Unemployed	23	26	22	23	-	-	-
Not economically active	71	66	74	71	-	-	-

Source: Statistics SA Census 2001 adapted from MWRRU, 2007

2.15. Health care facilities

The only municipal hospital in Msinga is the Church of Scotland Hospital (COSH). The Hospital is centrally positioned in Tugela Ferry and is readily accessible to the majority of the residents. There are also 14 state clinics, one state-aided clinic and two mobile clinics serving 31 points. However, households have to go to the municipal hospital in order to get treatment for serious illnesses. This aggravates health costs for poor households especially when there are sudden illnesses. In these cases, households are forced to hire cars from members of the community as there are no ambulance services and the roads are inaccessible. In certain isolated areas, communities have to transport the sick on their shoulders to reach a health centre (Researcher observation, 2008, 2009 and discussions with members of the community, 2008, and 2009).

Table 6: Health Facilities

Type of facility	Number of Facilities	Location
Hospitals	1	Tugela Ferry
Fixed State Clinics	14	At COSH
		emachunwini
		Nyandu
		Majozi
		Mawrle
		Nocomboshe
		Gunjana
		Ngubevu
		Mahlaba
		Mbangweni
		Mhlangana
		Emabomvini
		Mandleni
		Nthahleni
State Aided Clinic	1	Pomeroy
Mobile Clinics	2	Servicing 31 points

Source: UMzinyathi District Health Report 2003

2.16. Traditional health care

As it is in many rural areas of KwaZulu-Natal and South Africa as a whole, traditional medicine is widely practiced in Msinga. Nearly all participants in this study admitted that they consulted traditional healers, who are readily accessible to individuals and families in the community, because they live where people live and are the main source of health services. They are affordable because they are generally within walking distance and their initial fees are minimal (Personal conversations with members of the community in Msinga, 2008 and 2009).

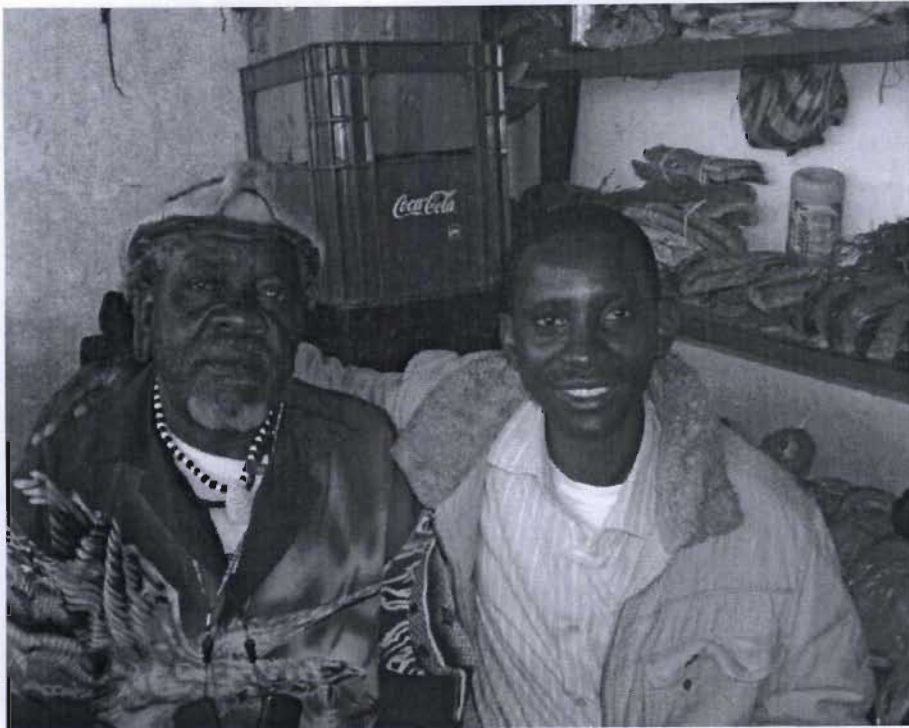


Plate 3. The researcher (r) with a traditional healer in the consultation room during an interview

2.17. Conclusion

One of the major obstacles in coping with external shocks such as drought is the lack of assets, quality livelihoods and social support including institutional responses to poverty reduction. In this chapter, we have seen that communities in Msinga are poor and lack assets, employment and have limited access to public services which could assist them withstand the effects of drought prevailing in the area. Furthermore, the quality of livelihoods that people have to undertake in the area is poor due to drought. Agriculture and herding are the most dominant form of livelihoods in the area. The level of drought makes it difficult for these communities to sustain their livelihoods. It is important, to note, if livelihoods of these communities are to be sustainable, there is a need to combat the level of poverty and increase the ability of the population to withstand the effects of drought in the settlement.

CHAPTER THREE

LITERATURE REVIEW

3.1. Introduction

This study investigates the application and use of indigenous knowledge and government responses to drought through a case study of a rural village in Msinga, northern KwaZulu-Natal. In this chapter, specific attention is paid to drought. This chapter is divided into two parts: Part I begin with a literature review on drought; its causes, relationship to vulnerability and poverty; its socio-economic and political impact; drought in other countries; history of drought in South Africa and policy implications and international responses to drought are discussed in this part as well. Part II reviews the literature on indigenous knowledge systems and is divided into sections.

PART I: Literature Review of Drought

3.2. Conceptualisation of drought

This section begins with a review of different definitions of drought. While drought is considered the same as any other natural disaster such as floods and earthquakes, it however remains one of the least understood natural phenomenon, but affecting more people than any other natural disaster (Blaikie *et al*, 1994, Hilhorst, 2004 and Bankoff 2004). Some attempts have been made to understand drought and much focus of these attempts have only been directed to drought as a natural phenomenon, but less focus has been paid to understand the social ramifications to drought (Blaikie et al 1994, Wilhite 2005).

According to Blaikie *et al* (1994, p.75), drought is defined as a natural phenomenon encompassing a set of variables, which includes the physical, economic, social and political. While it is important to discuss drought through an anthropological perspective, it is however, important to briefly discuss how drought is defined in other disciplines such as meteorology, agriculture and economy. In the next paragraph, a brief definition is provided from other disciplines.

From a meteorological point of view, drought is defined on the basis of the degree of dryness and the duration of the dry period, mainly measured in terms of the amount of rainfall for a specific duration (Whitmore, 2000, p.18). For agriculturalists, drought is defined in terms of precipitation shortages, the gap between the current rainfall and potential evaporation, to the extent that it can cause the absence of water needed to meet the needs of a particular crop, livestock or other dry land agricultural operation (AFRA,1992, p.23). Economists associate drought with the failure of the supply and demand of goods and services (AFR, 1992, p.24). For Wilhite *et al* (2000, p.27), drought is defined not only as the absence of rain for the crops, but the absence of rain at the time when it is expected.

Blaikie *et al* (1994, p.67), analyzing disasters and drought from an anthropological point of view, suggest that meteorologists, agriculturalists and economists' definitions have limitations. They believe that drought, like other natural disasters, should be understood through a set of variables which determine the vulnerability of individuals or households and their inability to withstand external shocks. Proponents of rural sociology, such as Finan *et al* (1999 cited in Hilhorst, 2004, p. 87), contend that drought should be understood in line with poverty, vulnerability and its severe consequences on the livelihood of the poor whose capacity to cater for daily basic needs is limited. Blaikie *et al* (1994, pp.87-94) concur, and maintain that debates about drought disaster from the perspective of ecologists, agriculturalists and economists are mainly confined to the process of natural events, the absence of rainfall, and the market system without fully understanding the dynamic complexity surrounding drought, including vulnerability, poverty, exposure, response strategies and the institutional framework that governs communities and their relationship to their own environment. Bankoff (2004) argues that in order to understand disaster, all factors causing and aggravating it need to be given emphasis. Bankoff (2004) and

Blaikie *et al* (1994, pp.87-94) contend that drought and disasters in general should be understood in terms of their impact on the communities and the seriousness of the disruption of the normal functioning of human activities. Further, it is necessary to understand the material and environmental losses which exceed the ability of the population to cope and the consequences this has on the livelihoods of the poor.

Wisner (1997, p.37) believes that disasters should be analyzed as the result of the impact of hazards on vulnerable people. Wisner adds that in order to understand the nature and meaning of any disaster, it is important first to establish the social processes that generate unsafe conditions that can lead to a situation where people, especially the poor, cannot withstand the shocks brought about by such phenomena. Wisner (1997, p.37) suggests two frameworks for explaining this relationship between natural events and the social processes that generate unsafe conditions. The first framework is the Pressure and Release model (PAR). This model is designed to show in simple diagrammatic terms how vulnerability can be traced back to unsafe conditions, through economic and social pressures, to the underlying root causes. PAR allows one to integrate nature in the explanation of the impact of hazards, because nature itself and its extremes can be included in the workings of social processes. The second model is called the "access" model. This emphasizes that unsafe conditions arise in relation to the economic and political processes that allocate assets, income, and other resources in society. Wisner (1997) asserts that social systems can create the situation and conditions that lead to hazards having a differential impact on different communities and on different groupings in the same society and this leads to what Wisner (1997) calls the access model.

The access model postulates that the allocation and lack of resources can expose vulnerable people to natural events. Wisner (1997) explains that the distribution of wealth and power is a major factor in the impact of disasters, because these determine the level of vulnerability before and during a disaster. Blaikie *et al* (1994, p.136) argue that, in order to understand natural events, we need to first understand in detail how the distribution of resources is structured and how it turns some natural events into disasters for particular groups of people within a society. They hold the view that access to and distribution of resources can be acquired through different channels. Access can be acquired through social, economic and political relations

and usually includes the social relations of production, gender, class, ethnicity, status and age. These social relations translate into unequal distribution of rights, obligations and access to resources among people. Examining such hypothesis and linking it to social economic situation of the population in Msinga, there is a reason to believe the allocation of wealth and resources among the communities of Msinga, might determine the level of their vulnerability to drought prevailing in the settlement (see Chapter Two).

In order to understand the extent and nature of disaster it is important to understand what resources and assets are available to people that can help them withstand external shocks such as drought. As argued by Von Kotze (1999) the notion of access characterizes the daily process of earning a living in normal conditions, under which every individual or a household has different sets of resources to sustain a livelihood and therefore has a different range of constraints and choice of livelihood that could help recover or withstand any external shocks.

Examining the impact of flood in Bangladesh, Khan (1991, p.340) concluded that “previously unrecognized implications of the location bias for employment, shelter, access, and the utilization of flood shelter by the powerless people” has aggravated the level of vulnerability to floods. The same lesson can also be drawn from South Africa, where the majority of the population was excluded from the mainstream of the economy in the past. More recently, slow service delivery has generated a situation where poor people cannot withstand the shocks of poverty-related disasters, such as HIV/AIDS, floods, wild fires and droughts. A study conducted by Khandlhela (2002) in the Northern Province in two poor rural communities demonstrated that vulnerability to floods was worsened by pre-existing poverty, slow service delivery, lack of assets and a lack of social support. The study affirms that high levels of unemployment, lack of opportunity in all forms in the area and the lack of government interventions, from apartheid to a new dispensation, have diminished a household’s capacity to resist external shocks, in this case, flood.

To summarize the definitions provided above, drought can be understood as a combination of both natural and human actions, resulting into deterioration of the

environment leading to a situation where the livelihoods of the marginalized group are disrupted.

3.3. Causes of drought

There have been rigorous debates on the causes of drought. Natural scientists and social scientists differ on this subject. They agree, however, that human actions are a major contributing factor to natural disasters and droughts in particular. In this section, human-made causes of droughts are discussed.

3.3.1. Social or human-made causes of drought

Social scientists such as Wisner (1993), Bankoff (2004), Cuny (1985) and Lavell (1994) believe that the causes of natural disasters and drought in particular are a result of poverty, population growth, and political systems.

Studies commissioned by the Secretariat for the International Decade for Natural Disaster Reduction (IDNDR) (1989), "Risk and Society", indicate that one of the most important but least recognized causes of any natural disaster is poverty and high population growth. I argue that poverty, high population growth and political systems are important because they result in increased utilization of natural resources to the point where the natural ecosystems become increasingly vulnerable to climatologically perturbations, and can no longer support the communities that depend on them. The IDNDR study demonstrates that in Africa, more than 300 million people, comprising nearly half of the population of the continent depend on fragile ecosystems, where small perturbations can have severe consequences. For instance, in South Africa, during apartheid when the majority of African communities were concentrated on limited pieces of land, this led to a situation where the capacity of land could not cope with the growing population. This resulted in over-exploitation of the environment and rendered it fragile to environmental hazards such as drought and floods (Farrell, Anderson, Milton and Dean, 2009).

Wisner (1997) contends that disasters are not increasing because of the increase in the frequency of hazards, but because of increasing vulnerability to hazards. This includes the lack of assets and the lack of social support. The IDNDR paper argues

that the causes of disasters in developing countries, particularly in rural communities arise from repetitive acts such as land clearing, felling of trees and gathering of firewood, overgrazing of fragile ecosystems, soil erosion, desertification, and collapse of natural systems. While Buys (2000, p.15) agrees that droughts are natural, he argues that they are “a natural phenomenon man-made”. Davies (2000, p.27) of the University of Cape Town also cites overgrazing, because of reduced grass cover, as an important factor as it contributes to the severity of drought by converting grasslands into hard, bare earth.

Overgrazing results in desertification, yet rural people do not have enough land to graze their animals and have no other option than to continue degrading the land. In the case of Msinga, there is not enough land for grazing, the major source of energy is firewood, and overgrazing and cutting down trees will continue to take place, thus increasing the chances of drought. Economic and environmental conditions in Msinga do not offer new opportunities and leave communities with no other options than to continue deteriorating the environment.

While some researchers have linked the cause of drought to population growth, mainly in Africa, Kull (2004, p.13) disputes the notion of population growth as the cause of drought. He uses a range of environmental and ‘paleoclimatic’ studies to understand the relationship between population growth and desertification in West Africa, where it was commonly believed population growth was the principal reason for continuing desertification. He concludes that desertification is not as “much a product of the size of a population, but instead reflects the kinds of actions taken by people who have very few options for survival”. He reiterates that “when the poor are pushed into the most marginal natural environments to produce a living, they often have few choices for how they manage the natural resources that are available to them”.

What Wisner (1993) refers to as a process of marginalization occurs because of circumstances that generate a conflict of interest between society and the natural environment? These conflicts of interest occur when society, both rural and urban, causes degradation that in turn increases the risk of hazards and the severity of their impact.

It should be noted that the root causes of disasters identified by the Disaster Management Directorate in South Africa are poverty and inequitable development. "Land ownership, growing level of unemployment in historically disadvantaged communities has aggravated the risk to floods". (Disaster Management Directorate in Nchabeleng, (1999, p.27). It is argued that rapid population growth, inequitable patterns of land ownership, lack of education and the practice of subsistence farming on marginal land leads to vulnerable conditions such as the unsafe sitting of settlements, unsafe homes, deforestation and environmental degradation. The combination of these vulnerable conditions has resulted in many people being adversely affected, turning natural hazards into a national disasters. The effect of drought on diverse forms of sustainable livelihoods, if not well managed, can lead to a situation where a household will not be able to recover from such disaster and remain vulnerable as a result.

3.4. Linking drought to vulnerability and poverty

Wisner (1993) and Blaikie *et al* (1994, pp.67-87) have developed pressure, release and access models to explain the cycles of disasters, and their relationship to vulnerability, introduced above. Wisner's (1993) model is concerned with looking at what happens when poor people who lack resources and the most basic needs are exposed to risks. The model presents a causal link between exposure and capacity, a lack of resources, access and vulnerability. The foundation of Wisner's model is that the lack of access and resources creates a situation where an individual or a household is exposed to hazards and threats, while simultaneously reducing the capacity to cope and recover from such hazards. Blaikie *et al* (1994) in their PAR model, acknowledge that access to resources varies between households, thus explaining the variation in vulnerability. Figure 3 below shows Wisner's model which presents the links between exposures to hazards, ability to respond, adjustment to risk and how the lack of resources will influence vulnerability to natural hazards.

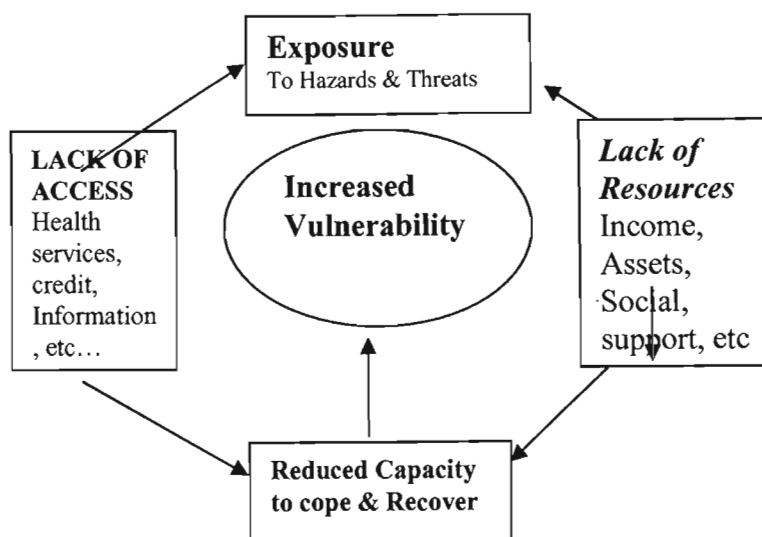


Figure 3: Interrelationships between exposure and capacity, lack of resources and access can enhance vulnerability to disaster. (Source: Adapted from Wisner (1993))

Wisner's model is useful as it allows one to understand what makes poor people vulnerable to risks. Wisner (1993), Blaikie *et al* (1994) and Winchester (1992) have all underlined the lack of incomes as a common trait in vulnerability. This is a common trait in rural villages like those in Northern KwaZulu-Natal where unemployment is rife, and access to basic needs and social infrastructure limited.

The importance of flows of income and the dimension of deprivation as a measure of vulnerability has also been discussed by Winchester (1992), who believes that when a household or a community is deprived of an income, it becomes helpless in the face of a disaster or other shocks, as opportunities for intensifying or diversifying strategies to cushion themselves against the effect of hazards are substantially eroded. Winchester argues further that it is important to understand the labour market systems and structures to understand how this may increase vulnerability, since this reduces the capacity of vulnerable people to mobilize resources and withstand shocks from hazards. Winchester (1992, p. 47) believes that households

with limited incomes derived from social transfers, entitlements or claims from state are likely to have limited capacities to convert resources into other assets such as investments. Further, lack of knowledge, skills and education become a constraint to accessing essential goods and services.

3.4.1. The Pressure and Release Model in explaining vulnerability

The main objective of this model is to understand and examine disaster in relation to what Blaikie *et al* (1994) term the “progression of vulnerability”. This model is based on the interaction and links between the root causes of the disaster and the dynamic pressures (activities or procedures) that translate these causes into the vulnerability of unsafe conditions. Blaikie *et al* (1994) argue that these conditions or processes lead to disaster and exposure to hazards. Similarly, Wisner (1993) believes that lack of access to resources can become a significant factor and a “root cause” of generating vulnerability to risks. She proposes a pressure and release model in order to understand vulnerability in its own context.

The pressure model sketches out in a very detailed way the process and activities that ensure the progression of vulnerability. On the other hand, Bankoff (2004) contends that vulnerability is also about people, their perceptions and knowledge; people’s ideas about risks and their practices in relation to disaster constitute the sextant and compass with which they measure and chart the landscape of vulnerability. In order to clearly understand the PAR model Blaikie *et al* (1994), have presented this in an equation: $R \text{ (risk)} = H \text{ (hazard)} + V \text{ (vulnerability)}$.

This equation demonstrates that disaster is a result of the interaction of hazard and vulnerability. The equation recognizes that a given hazard does not have an evenly destructive impact in an existing poverty situation. Von Kotze (1999, p4) argues that “what creates the crisis is the inability of a given element at risk to resist the impact of hazards”. She adds that to understand the potential impact of yet another threat to an already vulnerable condition requires understanding the whole picture - the environment, social networks and systems, and economic relationships. Von Kotze (1999) categorizes vulnerability to disasters into three distinct groups. The first is that people may be *physically vulnerable* and thus live in poorly-constructed houses and on land susceptible to catastrophe; they also may be poor, lacking reserves and

insurance that could help them recover from such catastrophes. Secondly, people may be socially vulnerable by being marginalized and excluded from decision-making and political processes. Thirdly, people may be psychologically vulnerable if they feel powerless, victimized and unable to take effective measures for their own security. On the other hand, Sampath (1999, p.5) regards vulnerability to disasters as “the extent to which a community structure, service, or geographic area is likely to be damaged or disrupted by the impact of a particular hazard, on account of their nature, construction and proximity to hazardous terrain or a disaster prone area”. Sampath’s approach to vulnerability and disaster is similar to that of Von Kotze (1999). He categorizes vulnerability to disaster into *physical* and *socio-economic*. Physical vulnerability has to do with location of households and their assets. If poor households are exposed to an environment prone to disaster such as drought and with limited assets, such households will remain vulnerable or it will be difficult for such households to recover. Further, when such vulnerability persists, it can also lead to socio and economic disintegration and in some instances lead to civil wars (Rahmato, 1991).

3.4.2. Access Model

In order to understand how disaster impacts on poor people, Blaikie *et al* (1994) expanded the Pressure and Release model to what they term an access model. This model attempts to explain what the PAR model could not, such as how resources are distributed and allocated by the social process and how this process can render some people more vulnerable to hazards. The access model according to Blaikie *et al* (1994) acknowledges that access to resources varies between households, thus explaining the variation in vulnerability. The access model proposed by Blaikie *et al* (1994) demonstrates that access determines the ability of an individual, family, group, class, gender, status or ethnicity group, etc to recover or adjust to external shocks. It thus suggests an equal distribution of rights and obligations. In case of disaster, the access model acknowledges that it is not only social relations that determine access, but disaster can also produce changes in how available resources are distributed in times of crises.

3.4.3. Vulnerability and Assets

In order to understand the relationship between assets and vulnerability, Moser (1996) developed an “asset vulnerability framework”. This emphasizes the assets held by poor people and the ways in which they are used for survival and reproduced in times of uncertainty. In his “assets vulnerability framework”, Moser (1996) identifies five categories: labour, housing, social and economic infrastructure, house relations and social capital. He believes that poor individuals and households seem to manage these types of assets as “complex portfolios” and that asset management strategy can affect both the process of asset accumulation and individuals or households’ vulnerability. Similarly Siegel and Alwang (1999) contend that assets play a very significant role in the livelihoods of poor households or communities, as they have a stock of wealth used to generate well-being and resist any kind of external shocks.

The World Development Report (2001) illustrates that assets are an important framework for understanding sustainable livelihoods. Moser (1996) and Siegel and Alwang (1999) agree that assets can have varying forms which would include those that are natural, physical, human, social and financial. The nature, quantity and quality of assets is an important indication of vulnerability as individuals or households themselves are endowed with different amounts of resources with a number of factors equipping them to cope with changes differently. Individuals or households cannot be equally vulnerable as the forms of assets they are entitled to tend to vary (Alwang, 1999). The greater the assets, the lesser will be the extent of vulnerability or *vice versa* (Moser, 1999).

The importance of assets cannot be underestimated in order to understand the extent of risk and the ability of household to cope with shocks. The basis of assets theory is that assets can also be subject to risk themselves. This position is supported by Siegel and Alwang, (1999) who believe that risk can be channeled through households’ assets while these assets are allocated to manage risks and to maintain livelihoods. In order to understand the risks that various forms of assets present, Dercon (2001) illustrates how physical assets such as land are governed by rules and uncertainty especially if they are converted into production factors. Moser (1996) regards assets such as land as important tools for managing risk not only at household level, but at an individual and community level.

3.5. The socio-economic and political impact of drought

There is substantial evidence that drought presents a danger to human life. In developing countries like Sub-Saharan and Asian countries, drought has been identified as a serious natural disaster that brings many societal problems, which include the exacerbation of poverty and the creation of impediments to all social services, educational, health, and administrative services and the disintegration of social cohesion (Sanders, 2004, Holloway, 2003, NDMC, 2001, Vogel, 1992 and Newitt, 1988).

For instance, during the drought in Swaziland in 1992 about 90,000 cattle died. This had a substantial effect on the economy as cattle are a major source of wealth in that country. Because of persistent drought in Swaziland, food insecurity remains high. Food insecurity is compounded by the prevalence of HIV/AIDS (Mwaura, 2008, p.60) as producers of the foods are infected or affected by the disease. Numerous studies indicated a close relationship between drought and social and political conflict, as the competition for scarce resources is heightened during a drought (Holloway, 2003). During a drought both humans and livestock depend more on common property resources such as water and grazing. As common resources are exploited beyond their capacity, conflict ensues (Rahmato, 1991). During the 1980-1984 droughts in Ethiopia, because of the strain placed on common grazing resources, areas of traditional reciprocity or cooperation often became areas of conflict (Rahmato, 1991 and FAM 2000).

Examining the relationship between drought and the loss of entitlement, Sen (1981) argues that when drought strikes it leads to a situation where a poor household will lose its assets and become more vulnerable to drought as it has nothing to fall back on. Analyzing drought in Bangladesh, Sen (1981) points to a linear relationship between the collapse of entitlements and drought - drought reduces the overall amount of food, and affects the success of different groups of people in fulfilling their entitlements. For instance, the market prices of food normally rise and there is a

mismatch between the availability of food and the ability of the household to purchase such food (Sen, 1997, pp.76-88). Drought also weakens the social structure and mutual support. When hardship is generalized, individual households are not in a position to help one another. Studies conducted in Ethiopia in 1991 among famers demonstrated that during the drought social and mutual support broke down. Even members of well established groups reported a decline in group cohesion due to the fact that they no longer worked together in the fields because of the lack of rain (Rahmato, 1991).

3.6 Drought in other countries

This study is about drought and responses in South Africa; however, drought does not only affect South Africa, but is a world-wide problem. Drought is an endemic problem in developing countries and mainly in Africa. Some of the recent cases of drought are recorded in countries such as Kenya, Ethiopia, Somalia, Sudan and Djibouti. From the beginning of the year 2011, Somalia, for instance, has been experiencing severe droughts. Hundreds of people have died as a result of famines caused by the droughts. Thousands of livestock have perished, thousands of people have been forced to abandon their villages and seek help from the United Nations High Commission for Refugees. Conflict over the use of resources is the experience of the day (BBC News, 2011). In Kenya, drought is cited as a major problem which partially caused an economic meltdown, internal ethnic conflict and conflict over natural resources such as water and grazing land (IRIN, 2009).

In 1973, during the drought in Ethiopia, it was estimated that around 200,000 people succumbed as a result of famine (Rahmato, 1991). This was followed by the severe droughts of 1984-1985. Millions of households left their homes in search of food and millions of livestock perished (Rahmato, 1991). The effects of the drought were beyond the national government's capacity, thus, international organizations and the United Nations had to intervene. The International Communities of Red Cross (ICRC) Report (2002, p.6) reveals that pastoralists living in a far region, in north-eastern Ethiopia, had been badly hit by serious drought conditions. Extensive loss of cattle due to poor rains and the resulting decrease in grazing and water resources

had seriously compounded their capacity to cope with an environment known to be one of the harshest in the world. Drought has also exacerbated ethnic tensions and conflict in the region between the Issa and Afar communities over limited resources and further decreased grazing. As a result, these nomadic households found themselves facing destitution as they were forced to sell their remaining livestock assets to meet their essential needs.

The seriousness of drought in the horn of Africa is of major concern. A United Nations Report (2003) estimated that 40% of households in both Eritrea and Somalia were affected by drought (United Nations Report, 2003). In neighbouring Kenya, drought is cited as a major problem which resulted in an economic meltdown, internal ethnic conflict and conflict over natural resources such as water and grazing land (IRIN, 2009). From colonialism to post-colonialism, Kenya has experienced severe droughts, which forced millions of people to abandon their land, and the loss of livestock and livelihoods for millions of Kenyans.

The grave combination of livestock losses, plummeting livestock prices due to the poor condition of animals, and rising grain prices have created a serious food crisis for the pastoral people. Coping mechanisms have been exhausted, leading to destitution and starvation-related deaths, especially among children. Inter-ethnic conflicts over scarce water and pasture resources have also been reported (FAO, 2000). In this context the impact of drought in the African continent are serious.

3.7. Drought in South Africa

The purpose of this section is to provide a history of drought in South Africa, to characterize communities' underlying vulnerability to drought, and to document and map response strategies. As this study is about communities and policies, it is important to understand policy in action and how policy may have influenced the way indigenous communities responded to drought. It is further important to note that drought and drought interventions cannot be isolated from the policies and political systems of colonialism, apartheid and the new democratic dispensation, as the various systems informed policies on poverty and related problems.

The discussion on historical trends of drought and its underlying vulnerability is divided into two major sections. Section one gives the history of drought in South Africa as a whole, followed by the historical trends of drought in KwaZulu-Natal and then in Msinga. The history of drought in South Africa is divided into two periods. Period one starts by outlining the extent of drought and policy implications in South Africa in 1800s, followed by the drought of between 1900s up to 2004. In the section about KwaZulu-Natal, the history of drought and policies is discussed from 1800s up to 2004.

3.8. Drought in South Africa in 1800s

Documented evidence shows that the period from 1800-1839 was marked by unusually severe droughts and abnormal low rainfall in most of South Africa. Before the beginning of the 1800s, in the 1660s, the Dutch East India Company had established an agricultural community of Dutch settlers to supply grain and meat to Company ships bound to and from their East Asian colonial possessions (Ballard, 1986, p.266). Between 1800 and 1830 this agricultural community was negatively affected by droughts. In the Cape Colony, between 1800 and 1830, there was a disastrous harvest which led to famine in the entire Cape region and across the country (Ballard, 1986, pp.266-267). In 1801 there was an almost total failure of crops in the Cape region as a result of drought (Ballard, 1986, p.267). Between 1803 and 1805 there were successive failures of the grain harvests due to drought which resulted in "families in Cape Town for the time being only permitted to purchase from the Bakers at the rate of one pound for each man and half a pound for each woman or child in their respective houses" (Ballard, 1986, pp.266-267). The colonial administration had to import food from Britain in order to starve off famine. Ballard (1986) argues that droughts had a significant impact on colonial administration and its agriculture policies. Migration was eminent.

Prolonged drought between the years 1801-1826 complicated British colonization efforts in the Eastern Cape districts around Albany and Graham's town. Many settlers were driven off the land and into other occupations, mainly trade, hunting,

and commerce (Ballard, 1986). Between 1826 and 1857 the migration of settlers to other areas of the country such as Natal was eminent (Ballard, 1986) as a result of severe drought in the Cape.

3.8.1. Government responses

During the droughts between 1801 and 1939, the colonial administration had to import food from Britain in order to starve off famine (Ballard 1986). Prior to the government interventions of the 1980s there were three forms of assistance adopted by the government to intervene during drought: 1) the government provided transportation to farmers to move livestock to areas not affected by drought; 2) the Maize Control Board with the financial assistance of the Government supplied maize to meet all the requirements of the country and in the case of severe droughts maize was made available for the feeding of stock in drought-stricken areas at the lowest possible prices; 3) the government made loans available to farmers without surety and loans had to be repaid in the long term (Edley, 1994, p. 203).

The continuing drought forced the government to provide subsidies to farmers to help pay for feed. Bruwer (1990) argues that one of the difficulties with the assistance was that it did not encourage farmers to adopt production strategies that could help minimize the risks of drought on agriculture and the environment. Other assistance made available to farmers during droughts included a “water quota” subsidy for irrigation and incentives for converting marginal cultivated lands to perennial pasture crops in both summer and winter rainfall zones.

3.9. Drought in South Africa - the 1900s-2004

As indicated above, droughts are not a new phenomenon in South Africa. Analyses based on the districts declared drought-stricken between 1900 and 1939 shows the degree of droughts. Table 7 below shows that the Cape Province and the Orange Free State were worse affected by drought than those in the Transvaal and Natal, although the latter two provinces are by no means free from such phenomena. For the 14 years from 1926 to 1939, some areas of each of the provinces were, on average, declared drought-stricken, noted in Table 7.

Table 7:
Portions of each of the provinces on average declared
Drought-stricken in the years 1926 to 1939

Province	% of total area
Cape Province	45
Orange Free State	29
Natal	16
Transvaal	10
Union:	33

Source: Department of Agriculture and Forestry Economic Series No.32 1941.

Table 8 gives the number of districts declared drought-stricken in each year and in each province from 1926 to 1939.

Table 8: Number of Districts Declared Drought-stricken annually 1926 -1936

Year	Cape.	O.F.S	Natal.	Transvaal.	Union.
1926	33	6	3	3	45
1927	57	7	3	4	71
1928	55	4	-	2	61
1929	17	0	-	-	17
1930	8	1	-	-	9
1931	9	4	14	-	27
1932	20	11	14	-	45
1933	46	33	6	8	93
1934	36	19	1	4	60
1935	11	-	6	3	20
1936	27	3	11	5	46
1937	70	20	4	7	102
1938	71	20	1	4	96
1939	32	7	-	2	41
Ave. 14 years	35	10	4	3	52

Source: Department of Agriculture and Forestry Economic Series No.32 1941, p64).

Nearly the entire Orange Free State province was declared drought-stricken in 1933, while 70 percent of the area suffered a similar fate in 1937. Natal had more than 38

percent of the districts declared as drought-stricken in 1931, 1932 and 1936. In the Transvaal the worst droughts occurred during 1935, 1936 and 1937 with 29, 36 and 26 percent of its area declared drought-stricken, respectively. For the Union as a whole, high percentages of drought-stricken areas were recorded with 43.2 percent (1927), 39.4 percent (1928), 53.7 percent (1933), 56.8 percent (1937), and 54.1 percent (1938).

The above Table also shows that every year from 1926 to 1939 a considerable portion of some part or other of the Union was subjected to drought. This applies particularly to the Cape Province which has not been entirely free from drought for a single year since 1926. The Orange Free State was free from drought only during 1929 and 1935 and nearly so in 1930; Natal only during 1928, 1929, 1930 and 1939; and the Transvaal only during the four years 1929 to 1932, and nearly so during 1939.

In 1960, 1976, 1980-84, 1990-92, 1995, 1996, 1998, 2000 and then 2003-4 numerous cases of drought were reported across all provinces of South Africa and this caused serious damage to both commercial and subsistence farmers (Consultative Forum on Drought, 1992, and Information Bulletin 2004 and Rwelamira, 1997). There are no actual records of losses available prior to 1990-92. In 1992 the President's Council found that 55 percent of South Africa was threatened by desertification (Association For Rural Advancement, 1993). In the same year drought, which was ascribed to the *El Nino* phenomenon, caused an 80 percent national crop failure (Consultative Forum on Drought, 1992). During the 1990-92 droughts it was estimated by the South African Reserve Bank that 50,000 jobs were lost in the agricultural sector alone, with a further 20,000 in related sectors. The Bank estimated that in 1992, 70,000 jobs would be lost in the Northern Transvaal alone with a countrywide total of about 100,000 jobs (AFRA, 1992:17). The 1990-2 drought also affected food production and agricultural revenue, which affected GDP. During this period it was estimated that 243,000 head of cattle and 101,000 head of small stock were lost in the three communal districts of the Western North-West Province (Rwelamira, 1997).

Animal prices decreased dramatically due to the poor condition of animals and the prices of basic commodities increased dramatically (Rwelamira, 1997). Nearly four million tons of maize had to be imported. The government spent over US\$1 billion on drought relief. Critics of the government's relief package claimed that it focused too much on white commercial farmers (Rwelamira, 1997). Table 9 below demonstrates the losses of crop production incurred in the period 1990/1992.

Table 9: Production losses 1990/1992

	1990/1	1991/2	Losses (%)
Crop	Tonnes/million	Tonnes/million	
Dry beans	100	27	73
Grain sorghum	240	95	60
Soya beans	124	68	46
Sunflower seeds	589	173	71
White maize	3180	985	69
Yellow maize	4016	1448	64

Source: Association for Rural Advancement, Special Report no.9 1992

The 1990-2 drought was followed by a sharp increase of drought in rural areas in 1995, 1996, 1998, 2000 (Dube and Jury, 2002 and *Sunday Tribune*, 1995). There are no records available on the losses and damages caused by these droughts. Between 2003 and 2004 six South African provinces (Northern Cape, North-West, KwaZulu-Natal, Eastern Cape, Mpumalanga and Free State) were declared drought-stricken regions by then President Thabo Mbeki with as many as four million South Africans at risk from food shortages (Information Bulletin No 1/2004).

3.9.1. Government responses – from 1900s-2004

There is no evidence on the government responses to drought between 1900s to 1990. Following severe drought of 1990-2, in May 1992 the state announced an allocation of R350 million for agricultural drought relief. In the same year the state allocated another R3.8 billion for financial assistance to commercial farmers (Association for Rural Advancement, Special Report no.9 1992). Table 10 indicates how drought relief was allocated according to population groups.

**Table 10:
Allocation of drought relief in terms of Population groups
in rural areas 1992/3**

Rural population	Black	White
Number	15 million (93)	1, 2 million (7%)
Land availability	13 %	87 %
Drought allocation	R200 million	R844 million
Drought allocation per capital	R13	R703

Source: Association for Rural Advancement, Special Report no. 9 1992

From the table above, it can be seen that there were great disparities in terms of how state drought relief was distributed between black communities and their white counterparts. Marginalized and majority communities with the greatest need received the least assistance despite their survival being dependent on state intervention. Relief to commercial farmers was directed for the purchase of fodder, provision in water and transportation of animals to drought-free areas, while drought relief for the black population was mainly in the form of food parcels (AFRA 1992).

When drought hit in six of South Africa's provinces between 2003 and 2004, the government developed a drought mitigation plan to reduce the impact of drought by:

- providing emergency relief to vulnerable communities;
- providing fodder and water for both communal and commercial farmers;
- providing water for human consumption; and,
- Preventing communicable diseases, with special emphasis on malaria and cholera". (Drought Information Bulletin no.1/2004, p.7).

In October 2003, the South African government approved an allocation of R250 million for drought relief. In November, this allocation was increased by a further R250 million. A further allocation of R500 million was considered in the next financial year for long term intervention (Drought Information Bulletin no.1/2004).

The Ministry of Social Development issued a media release on 30 January 2004, in which the Minister of Social Development appealed to the NGO community and other faith-based organizations for assistance in mobilizing committees and

monitoring the food emergency programme. The minister urged the government and communities to form food emergency forums to help ensure that the government's food emergency scheme was appropriately implemented among the most vulnerable sectors of population. The distribution of food relief was considered to be a temporary measure to curb the impact of drought (Drought Information Bulletin no.1/2004). The scheme assisted millions of the most vulnerable people in communities (Drought Information Bulletin no.1/2004). It is estimated that R360 million was spent on food parcels for vulnerable households. Each household received food parcels at a cost of about R300 per month (Drought Information Bulletin no.1/2004). The government also allocated R1.2 billion for a food emergency scheme in 2004-2006 (KwaZulu-Natal Drought Report, 2004).

3.10. Drought in KwaZulu-Natal – 1800s

As discussed, drought has a long history in South Africa and KwaZulu-Natal is not immune from its visitation. Ballard (1986) contends that drought had dramatic consequences for the history of South Africa, since the drier weather coincided with the formation of the Zulu Kingdom and the establishment of European control over Natal and its African inhabitants. Drought and the shift in the political landscape in Zululand are cited as the catalyst that contributed to social, economic, political and historical changes in Zululand in the 1800s. Edley (1994) contends that the decline in rainfall and climate stress may have been one of the primary reasons for the social revolution that produced the Zulu Kingdom under Shaka⁷.

Guy (1977) traces a causal link between drought and the formation of chiefdoms in Zululand in the 1800s. He believes that the major chiefdoms had their origins in areas where a particular configuration of vegetation types existed, and that, as drier conditions occurred, several powerful chiefdoms emerged, notably the Mthethwa, Ndwandwe, and Zulu, in response to the competition for diminishing resources.

⁷ Shaka ka Senzagakona: one of the leaders of the smaller Zulu chiefdoms in the 1800th century. In early 1800s, there were severe droughts which affected the entire Kingdom of the Zulu, as result Shaka ka Senzagakona, as a young man, and his mother, Nandi, were forced to migrate from the Elangeni to the land of Mthetwa in search of food. For more details about Shaka and migration in search of food, read: Guy, J., 1977. *Ecological factors in the rise of Shaka and the Zulu kingdom*. University of Natal Press.

There were significant political changes during the drought. The Abakwa Qwabe chiefdom is a particular example. "Between 1700 and 1750 the Qwabe chiefdom expended from the drier, drought stricken interior of the middle valley of the Mhlalatuze River to the wetter, humid coastal lowlands, where there was less risk of prolonged drought" (Ballard, 1986, p.368). The increases in density of the human and livestock population in Zululand thus increased the tensions between rival chiefdoms. The region's resources were exploited to their limits to the extent that they were no longer able to support those who lived in it (Ballard, 1986).

3.10.1. Community's Responses

Government responses to drought at the national level have been discussed earlier on. There is no information about how the government responded to drought specifically to KwaZulu-Natal between 1800s-1936. During the 1800s, and up until 1939, communities in Zululand, currently named KwaZulu-Natal, adopted a wide range of mechanisms to adjust to drought. These response strategies can be classified into three categories: 1) Diversification of crops adapted to drought conditions; 2) Migration to non-drought affected areas; 3) Market exchange and in some instances raiding other land (Ballard, 1986).

During the first "half of the eighteenth century many northern Zululand communities relied more heavily on drought resistant sorghum as food staple than on the higher yielding, but less drought tolerant maize that was introduced into Southeastern Africa around 1700 by Portuguese traders from Delagoa Bay" (Ballard, 1986, p.362). Drought related famine in the 1800s drove entire clans or sections of chiefdoms to abandon their homes and migrate elsewhere in search of food. For example, Mahaya ka Nongqabana, cited in Ballard (1986, p.364), recalls how his father's people left Swaziland and trekked 300 or more miles to what is now Harding in southern KwaZulu-Natal or the more humid coastal belt near present-day Durban (Ballard, 1986, p.369). Mahaya's evidence suggests that there was some exodus from the more seriously drought- stricken interior to the better watered coastal lands. Ballard believes that this process of human migration from the drier interior to the wetter coastal area occurred in the first 50 or so years of the eighteenth century.

Drought related famine might have caused a repeat of interior-to-coastal migrations of the early 1800s. Shaka ka Senzagakona, as a young man, and his mother, Nandi, are believed to have migrated from the Elangeni people to the land of Mthetwa in search of food. Bryant (1985) cited in Ballard (1986) argues that: "After Shaka had been some years back in Elangeni land, stark famine came to stare him in the face in 1802. It was the calamitous time of Madhlatule. The Madhlatule famine set entire families, tribes, and perhaps whole chiefdoms into restless, desperate motion. Their migration was treks of survival in search of food through barter in cattle or, if they were destitute, through raiding and violence" (Ballard 1986, p. 357). Ballard believes that such social disintegration and political disorder may have occurred at the crucial moment when the Mthethwa kingdom was expanding under Dingiswayo and Shaka, his successor, into a large centralized state capable of providing more efficient organization of the agricultural economy.

3.11. Drought in KwaZulu-Natal 1900-2004

The 1823 drought in Zululand and Natal was followed by the droughts of 1926, 1939/30 and 1933/34 which led to the loss of millions of livestock (Edley, 1994). Despite the fact that the Zulu were accustomed to losing large numbers of cattle through droughts and disease, the situation in Zululand was so desperate that the former Minister of Native Affairs, Mr. E. G. Jansen, (M.P. for Vryheid) informed parliament that 203,326 Zulu cattle had died in the period from June to November 1931 alone as result of droughts (Edley, 1994, p.198). Drought left Africans in the reserves not only impoverished but starving. Following the magnitude of drought in the period between 1926 and 1934 and its impact on native reserves, the Native Affairs Department (NAD) was forced to declare the inland reserves of Zululand famine areas and maize was distributed (Edley, 1994, p.198).

During the 1926-34 droughts in Zululand, the birth rate among cows was falling: the average number of calves born per cow fell from between 15 and 20 to only seven or eight, as a consequence of their poor condition and the lack of grazing (Edley, 1994, pp.199-204). Milk production, always dependent on the weather and the quality of grazing, was negatively affected by the poor environment. This had serious

consequences for many children who were largely reared on a diet of milk. Even the market for skins and hides, which had often provided African families with a small but steady income, ceased to provide the customary returns as a result of the depression resulting from droughts. This had serious consequences, for even in the worst of times when cattle had died of drought or disease, the sale of the hide of a dead beast provided an income. Often this was the only income that could be obtained from such an animal (Edley, 1994, p.198).

Years of depression as the result of severe droughts had a negative impact on the cattle and sheep holdings of the Zulu people and, therefore, on the daily lives of the inhabitants of the reserves. During the drought, large numbers of sheep perished and declining prices for wool sheep forced a changeover to the more hardy mutton sheep (Edley, 1994, p.198). The increase in drought and its impact on livestock and agriculture on reserve dwellers forced out thousands of families in search of employment in white farms in Natal. Simkins (1978:63) asserts that the "fragile maintenance of a productive base in the reserves was assisted by the migration of a significant number of their inhabitants, which alleviated some of the problems of overcrowding and partly relieved the pressure on limited resources". Given the abundance of labour on white farms during the depression years as a result of drought, poor economic conditions encouraged white farmers in Natal to evict African tenants and laborers from the farms in order to boost productivity and profitability (Edley, 1994, p.203). Edley (1994, p.205) notes that "the depression and the resulting hardship reported by the National Economic Council [NEC] can be taken as one of the factors that motivated the Hertzog government to allocate additional land to the reserves in 1936".

From 2003-2004, it was reported by local government that in the northern area, over 700,000 people were without clean water and boreholes. Springs had dried up and there were serious cases of diarrhea as a result (Drought information bulletin, No1, 2004). Areas that were severely affected included the district municipalities of Zululand, UMkhanyakude, Sisonke, UMzinyathi, UThungulu, and ILembe (KwaZulu-Natal Drought Report, 2004).

During the 2003-2004 droughts, Msinga local municipality was among the worst affected areas in UMzinyathi district municipality. The IRIN (14 June 2007) indicates that the residents of Msinga area reported producing less food over the past few decades because the rain had become more erratic. Unable to grow enough food, many people have been forced to seek work away from home for long periods of time. Chris Jenkins, writing in *The Mercury* (August 4, 2006), indicates that hundreds of thousands of people in the UMzinyathi district of northern KwaZulu-Natal had been hit by a drought-induced water shortage for a long time.

During the 2003-2004 droughts in UMzinyathi district municipality, which includes Msinga as one of its local municipalities, 237,200 people out of 160,000 were affected by drought (Department of Water Affairs and Forestry, 2004). This represented 40% of the total in the entire province.

3.11.1. Government and community responses to drought in KwaZulu-Natal 2003-2004

Government responses to droughts are discussed in the national framework. KwaZulu-Natal was also included in national responses as discussed before. Here a brief focus is directed to the response to drought of 2003-2004.

On 5 December 2003, during severe drought which affected six provinces of South Africa, the government announced an emergency water provision programme and municipalities received emergency assistance to help maintain domestic water supplies for both commercial and subsistence farmers. Affected municipalities in KwaZulu-Natal received R21.6 million for this purpose and a further R8.2 million was made available for immediate allocation (KwaZulu-Natal Drought Report February 2004). The National Cabinet approved a further R250 million and the affected areas in KwaZulu-Natal were allocated R49.05 million on 18 February 2004 (KwaZulu-Natal Drought Report February 2004). During the same period a number of farm workers lost their jobs as a result of droughts and a number of rural family members had to "leave and seek work away from home" (IRIN, 14, June, 2007).

3.12. International Responses

Apart from high debt burdens, political opportunism and mismanagement, natural disasters have been identified as some of the key factors that contribute to poverty, migration, losses of jobs in agriculture sectors, conflict over resource use, famine and underdevelopment in Africa (Rahmato, 2003, Mekonnen, 2006, Solomon, 1996, Sanders, 2004, p. 87, Bollig 2006, pp. 176-199, and Ullah 2004:1, and Blaikie, *et al*, 1994). Africa has 33 of the 50 poorest countries in the world (UN, 2000) and is the only region where disasters such as drought, floods, and HIV/AIDS are not managed and the ill-effects not decreasing. For over two decades, there has been public debate around the key issues of climate change that has lead to disasters, causing human and material losses. This has been recognized at all levels of decision-making, including the United Nations, the African Union, as well as sub-regional organizations such as the Southern African Development Community (SADC) that includes South Africa. These institutions committed themselves to combat the scale of the phenomenon by developing mechanisms and policies to deal with the phenomenon and poverty-related issues. In response to disasters prevailing in Africa and around the world, declarations, conference and policy recommendations have been made recommending proactive intervention to disasters. This included developing long terms programmes directed at eradicating the level of poverty (United Nations, 1999).

3.12.1. The United Nations responses to disasters

Recognizing the impact of natural disasters, in 1987 the UN General Assembly designated 1990-2000 as the International Decade for Natural Disasters (IDNDR) and set a goal to reduce the loss of life and damage resulting from the growing number of disasters (United Nations, 1999). The IDNDR was adopted by the UN as a response to a call made by Frank Press, the then President of the American National Academy of Sciences, who challenged the UN General Assembly with the following question: "Given the demonstrated capabilities of science, and rapid developments in technology, could it not be possible to reduce the loss of life and damage experienced by the growing number of natural disasters?" (United Nations, 1999:24). In response to Press, the UN formally adopted and proclaimed the IDNDR

Annex resolution 44/236. The resolution contained the objective for IDNDR as well as the recommended framework of action to achieve its objective.

According to the document, the IDNDR's objective was to reduce " the loss of life, property damage and social and economic disruption caused by natural disasters" (United Nations, 1989). The framework of action contained in the IDNDR suggested that in order to achieve the IDNDR objective each country must:

- Build national capabilities to mitigate the effects of disasters with a natural trigger
- Develop guidelines and strategies for applying existing knowledge; foster research to close gaps in knowledge and,
- Disseminate information and develop measures to apply technical assistance and technology transfer, demonstration projects, education and training (United Nations, 1989, Annex).

However, according to Varley (1994), the IDNDR's extensive list of recommendations did not require governments to change significantly. Initially, the IDNDR participating governments were not required to devise innovative disaster risk reduction strategies, or even pursue a national disaster risk reduction framework; governments were simply instructed to assist with the expansion of existing practical measures for effective disaster preparedness and response. Blaikie *et al* (1994) argue that the strategies outlined by the IDNDR ignored and failed to address the root causes, dynamic pressures and unsafe conditions that contribute to risk such as the level of poverty in developing country and political mismanagement.

Given that the IDNDR received criticisms of its elaboration stage, the Secretary-General created a Scientific and Technical Committee to develop and make recommendations on disaster related programmes (United Nations, 1999). In 1991, at an IDNDR inaugural session, the Scientific and Technical Committee proposed three programme targets to complement the Decade's overall objective. The added proposed programme suggested that in order to reduce disasters effectively and in a sustainable way all countries must have in place (United Nations 1999, p17):

- A comprehensive national hazard risk assessment integrated into development plans;
- Sustained disaster mitigation strategies integrated into the national economic development plan;
- Improved access to effective early warning systems at all levels of responsibility.

The targets of the programme highlighted the notion that the IDNDR was initiated on the premise that disaster risk could be reduced through the expanded use of scientific and technological transfers (United Nations, 1999). Shortly thereafter, the limitations of the intended objective became more apparent. The limitations of the IDNDR were demonstrated after Hurricane Andrew and the Northridge earthquake in the United States, the Baguio earthquake followed by the Mount Pinatubo volcanic eruption in the Philippines, and several incidents of severe floods in China and throughout other parts of Asia (United Nations, 1999) where the set objective of the IDNDR failed to respond appropriately to these disasters. Following these disasters, the need for the international community to get involved in policy change in IDNDR was initiated. Pressures for an expansion of the IDNDR's focus came from other international development initiatives. For example, the global commitment to sustainable development conveyed by UN Agenda 21 emphasized the notion that sustainable economic growth and development cannot be achieved without taking measures to reduce losses from natural hazards (United Nations, 1999) and therefore the need to focus on development was clearly an imperative. UN Agenda 21 also proclaimed the UN acceptance of a close link between disasters with a natural trigger, economic development and environmental degradation (United Nations, 1999) thereby acknowledging that disasters may be exacerbated by human actions and emphasizing the need to integrate technology and development. After carefully analyzing the IDNDR objective, the international community became more aware of socio-economic vulnerability as a contributing factor (United Nations International Strategy for Disaster Reduction, 2002a; Blaikie *et al.*, 1994). This new importance given to socio-economic vulnerability underlined the need to encourage disaster risk reduction activities, and shift the focus to include greater emphasis on the social sciences in research, policy development and implementation.

3.12.2. The World Conference on Natural Disaster Reduction: Review of the IDNDR

The need to reconsider the initial objectives of the IDNDR were again expressed at the official UN World Conference on Natural Disaster Reduction, convened from 23 – 27 May 1994, in Yokohama, Japan.

The General Assembly announced the 1994 World Conference on Natural Disaster Reduction in UN resolution 46/149. The objectives of the conference were to: (a) review the accomplishments of the Decade; (b) chart a programme of action for the future; (c) exchange information on the implementation of the Decade's programmes and policies; and, (d) increase awareness of the importance of disaster reduction policies (United Nations, 1999, p.25). Commentators heralded the Yokohama Conference as a "milestone event and a turning point in the IDNDR process", because the Conference formally recognized the limitations of the IDNDR's initial International Framework of Action (United Nations, 1999, p.86). Davis and Myers (1994) went so far as to say that Yokohama "re-launched the IDNDR". The UN Member States announced their policy shift through the policy statement: "the Yokohama strategy and Plan of Action for a Safer World". Guidelines for Natural Disaster Prevention, preparedness and Mitigation were drawn at the conference (1994). This document reviewed the Decade's mid-term accomplishments and, most importantly, outlined specific national recommendations for disaster risk reduction. In brief, the revised framework of action was characterized by a new emphasis on the social sciences in research, policy development and implementation (United Nations, 1999:7). This was a departure from the scientific underpinnings of the Decade's early beginning. Incorporated within this idea was a new focus on public policy; many countries were now required to adopt new legislation and devise national strategies for disaster risk reduction. The new recommendations outlined the necessity of the shift in focus, from emergency preparedness to the reduction of community vulnerability and, therefore, risk. Following the Yokohama Conference, disaster risk reduction has become a significant aspect of the UN system strategy in support of sustainable development, natural resource protection and sound environmental management (United Nations, 1999).

3.12.3. Accomplishments of the International Decade for Natural Disaster reduction

A summary of the IDNDR'S final achievements and recommendations can be found in the final report of the Scientific and Technical Committee (A/54/132/Add.1-E/1999/80/Add.1) and in the IDNDR's concluding report by the Secretary-General (A/54/132-E/1999/80) (United Nations, 1999b; United Nations, 1999c). The following provides an overview of the most salient features of each report and thus a synopsis of the concluding remarks of the IDNDR:

- a) Political Commitment:** The IDNDR did not generate internationally accepted standards for disaster risk reduction institutions, structures, or legislation. However, the IDNDR stressed that every government has the sovereign responsibility to protect its people, infrastructure and national, social or economic assets from the impact of natural hazards (United Nations International Strategy for Disaster Reduction, 2002:17). The IDNDR suggestion warranted special attention and challenges, especially for developing countries as these countries lack the resources to implement effective proactive disaster risk reduction systems. In actuality, research suggested that, "it is significantly more cost-effective to design and build a structure to standards that would withstand maximum expected winds or seismic forces in a given location, rather than build to lower standards and suffer the damages" (Organization of American States, 1993, cited in United Nations Inter-Agency Secretariat, International Strategy for Disaster Reduction, 2002, p.33).

- b) Hazard Assessment:** The Scientific and Technical Committee suggested that local and national authorities need to integrate hazard assessment more fully into their overall development plans (United Nations, 1999, p.6). Implementation of Local Agenda 21 initiatives should also include hazard assessment (United Nations International Strategy for Disaster Reduction, 2002). These approaches, which should be rooted in a financial subsidy, from either the national or provincial government, involves delegating decisions and implementation tasks to the most appropriate level, beginning at the local level with individuals and households (United Nations, 1999, p.6). This suggestion stems from the notion that poverty places people in precarious and unsustainable means of survival that

can create a range of hazards that cause disasters, or at least aggravates what may have otherwise been minor calamities (Davis, 1999, cited in United Nations, 1999, p.87). The suggestion was that individual households need to become involved in the hazard assessment process.

c) Disaster Mitigation: According to the Scientific and Technical Committee, since substantial resources in most countries are linked to economic development, it is important that natural disaster mitigation be an integral part of the development process. Failure to adopt such a basic strategy as a foundation for disaster reduction can easily jeopardize economic development itself (United Nations, 1999c, p.7). Following this warning, the Committee argued that often large projects and financial policies ignore the development interests of the poorest, most vulnerable segments of the population. In response to this concern, the Committee suggested that governments consider the needs of the poorer segments of the population. The Committee then listed the needs of poorer people such as cost-effective methods and materials to improve housing, as well as affordable hazard insurance. These suggestions were both laudable, if “improved” (Abramowitz, 2001, p. 138).

d) National committees: In General Assembly resolution 44/236, in which the IDNDR was founded, member states were asked to formulate national disaster mitigation programmes; establish national committees or focal points; mobilize support; increase public awareness; pay due attention to health care and related forms of essential social and economic infrastructure; and improved availability of emergency supplies. The formation of multi-sectoral national committees or focal points was considered to be the “best means for realizing these goals at the local level” (United Nations, 1999, p.10).

According to the committee, most countries adopted the progressive disaster risk reduction principles advocated during the IDNDR, and only a few continued to focus on the more limited concepts of emergency response (United Nations, 1999, p.9).

e) Initiatives of city officials and local level organizations: The scientific and technical committee reported that once local authorities became aware of the purpose of the IDNDR, they demonstrated an increasing willingness to participate in the Decade's activities (United Nations, 1999). The committee also reported that the local communities' participation had been an important contributor to the Decade's overall success (United Nations, 1999). As a final recommendation, the scientific and technical committee suggested that disaster risk reduction should become a central component of many local-level policies, including those that target social vulnerability, urban risk reduction, land use planning, and hazard assessment (United Nations, 1999, p.9). The last suggestion demonstrates the IDNDR's commitment to vulnerability reduction through social empowerment, which is a disaster risk reduction strategy.

The above outlines the achievements and recommendations of the UN IDNDR. Greater efforts are required for their achievements, however, this depends on the national government. This is discussed in Chapter Seven with reference to South Africa, that is, to see how the South African government as signatory to the UN IDNDR convention has responded to drought. While the international responses to natural disasters sound appropriate in responding to natural disasters, it is however infrequently put into practice. Many countries, mainly the African signatories, have not appropriately responded to natural disasters. The failure of the governments to respond to natural disasters with a focus on drought is discussed in Chapter Seven, particularly in the South African context.

PART II

LITERATURE REVIEW: INDIGENOUS KNOWLEDGE

3.13. Introduction

The purpose of this part is to review the literature on indigenous knowledge. This will underpin the discourse contained in Chapter One on the significance of IKS in this

study. This part concentrates on IKS in the face of drought disaster and themes that are relevant for the assessment of IKS. Focus is given to the following areas: linking indigenous knowledge to drought management, bridging indigenous knowledge and public policies and western science; challenges in bridging indigenous knowledge and public policy, and lastly, the conclusion.

3.14. Linking Indigenous Knowledge to drought management

This section provides a more comprehensive examination of common household indigenous responses to disasters and to drought in particular. Literature examining households' IKS responses to disasters indicate that households have a wide range of mechanisms to predict, mitigate and cope with disasters. Literature indicates that there are a number of factors and ways in which particular communities or households adopt specific drought management practices. Rahmato (1991, p.137), examining communities' IK responses to drought in Ethiopia, argues that household IK drought management techniques may be either crude or elaborate. They depend on a number of variables, such as the frequency of drought experienced, available resources at hand, and the social, cultural and political situation in the affected communities. Rahmato (1991) believes that what influences the households' response is associated with the households' livelihoods and everyday activities as the latter serve as the determining factors of their ability to adjust to the changes brought about by drought and external shocks. Examining communities' responses to drought in Tanzania, Kenya, Swaziland and South Africa, Mwaura (2008) believes that household indigenous response strategies to drought are mainly influenced by culture and belief systems and the economic situation.

The following provides an in-depth examination of households' indigenous response strategies to drought.

3.14.1. Drought preparedness and early warning

The concept 'preparedness' is defined as "activities and measures taken in advance to ensure effective response to the impact of disasters, including the issuance of timely and effective early warning and the temporary removal of people and property

from a threatened location” (United Nations International Strategy for Disaster Reduction, 2002, p.25).

In response to drought, households have developed a vast fund of knowledge on prediction and early warning that helps them prepare and manage drought effectively, even sometimes relocating whenever possible. As discussed earlier, there are diverse ways and motifs that influence individuals or households to adopt particular response strategies. In the field of prediction and early warning of disasters, the Luo community in the Lake Victoria basin in Kenya have a large number of climate monitoring indicators that enable them to know when it is the right time to start planting in anticipation of the rains or to preserve and store food in anticipation of a dry season (Mwaura, 2008, pp.21-35). These indicators include observation of the behavior of animals, birds, reptiles, amphibians, insects, vegetation and trees, winds, temperatures and celestial bodies such as the size of the moon and stars (Mwaura, 2008, pp.21-35). When a disaster or drought is predicted, household or community devise strategies that may help them weather the shocks brought about by these disasters. Among the most common strategies are building stores and savings which could assist as a fallback (Chen, 1991 and Mwaura et al, 2008).

Communities or households may face similar hazards, but the response will differ. Mwaura (2008) examined households' responses to disaster and drought in four African countries: Kenya, Tanzania, Swaziland and South Africa. He concluded that there are similarities and differences in households' early warning and preparedness systems. In Kenya, in many areas, the presence of “snakes and other reptiles, as well as wild animals, around homesteads in search of water and food indicated the prevalence and continuity of drought” (Mwaura, 2008, p.65).

In South Africa, in Northern Limpopo, the common belief is that drought is an act of God and therefore the early warning indicators have to be revealed to elders by ancestors who also act as intermediaries between nature and God to prevent drought from happening (Mwaura, 2008, p.66). In Swaziland, indigenous methods used to predict drought included “abundance of butterflies during the farming season, presence of army worms, the dropping off of young avocado fruits, and the

abundance of wild fruits during the months of December to February” (Mwaura, 2008, p.67). A study conducted in Tanzania in 2008 by a team of experts under the auspices of the United Nations demonstrates that communities have a wealth of knowledge of early warning indicators of disasters. The study found that, for instance,

...by reading signs on goat intestines specialized Masai elders could divine drought and famine, social conflicts, diseases, childbirth, peace or war in the chiefdom, and so forth. If the small intestine was found to be empty, drought or famine or hostility and war were to be expected in the chiefdom but if it had a lot of dung this foretold plenty of rain, no famine and peace” (Mwaura, 2008, p. 69).

3.14.2 Drought mitigation and prevention

The United Nations International Strategy for Disaster Reduction, (2002, p.25), defines the concept ‘mitigation’ as “structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards”.

Studies demonstrate that most households attempt to build flexibility into their basic livelihood systems in order to minimize external shocks (Chen, 1991 and Mwaura, 2008). Flexibility is most often directed at production systems such as diversification of crops and livestock, in the use of different resources, deployment or recruitment of labour, and in the mix of different occupations and activities, such as seeking employment (Chen, 1991, p.110). Cultivators, for example, mix crops and animal husbandry to varying degrees, mix and rotate crops with varying maturity and yields, mix family and hired labour in different ratios and combine cultivation with other activities as needed to weather the effect of shocks (Chen, 1991, p.111). Learning from India, Chen (1991) believes that “engaging in multiple activities is an important way of promoting flexibility and encountering risk and uncertainty” (Chen, 1991, p.111). In India, when drought is predicted shepherd households engage in agriculture. Other households engage in wage labour in order to accumulate resources which could help minimize the shocks (Chen, 1991, p.111). The mixing of crops has also been a strategy to prevent and reduce shocks from drought. In Tanzania and Kenya, mixing maize and cassava in the same plot can assist in

surviving drought as cassava is more resistant to dry conditions than the maize (Mwaura, 2008). Building granaries and storing food in times of abundance, to be used in times of scarcity, and building wells and dams have been effective in preventing and minimizing the shocks. For instance in Tanzania, the main vegetable for storage is the cowpea. When drought is predicted, the cowpea is cooked, dried in the sun and then stored. Other food stuffs “dried and stored included blood, meat and fish”. These are kept in traditional pots and baskets, which are hung above fireplaces (Mwaura, 2008: 26). Building up or drawing down inventories has also been highlighted as proactive household measures to ensure the availability of food. In normal years, households build up stocks that they can draw on during dry seasons.

For instance, in Kenya, because of the unpredictable nature of drought, pastoralists embark on strategies to take advantage of the good years. First, they often stock more productive females in their herds to ensure that animals lost are easily replaced when the climatic conditions improve and grass and water become abundant (Makali et al, 2010).

The experience of the researcher, who grew up in rural area of the Democratic Republic of Congo, was that when drought or lack of rain is predicted, community members organize themselves and build up food stores which will be distributed later if the rain is delayed. The reduction of the size of livestock herds is one of the measures undertaken by commercial farmers in South Africa and in KwaZulu-Natal in particular. This emerged during discussions with commercial farmers in Msinga (Personal communication with farmers in Dundee, 2008).

3.14.3 **Coping and responses**

The concept ‘coping’ derives from observation of the manner in which people act within existing resources and a range of expectations to achieve various ends under stressful conditions (Murphy and Moriarty in Davies, 2000). Murphy and Moriarty in Davies (2000, p.37) believe that coping in general involves no more than managing resources; but in this case it is done in unusual, abnormal, and adverse situations. Blaikie *et al* (1994) argue that household strategies are often complex and involve a number of mechanisms for maintaining resources and livelihood in times of

adversity. They state that coping strategies are not only means of survival, but also the maintenance of other human needs such as “the receiving of respect, dignity and maintenance of family, household and community cohesion” during the period of distress.

Lending support to this point of view, Rahmato (1991) argues that indigenous disaster survival strategies involve the adoption of emergency resources management measures, the effective use of natural resources, divestment of savings and disposal of assets, and greater and more efficient use of the market system. Literature shows that coping strategies are confined to a number of areas. When a disaster strikes, households respond by “tightening their belts” and consuming less food, drawing upon inventories which they have stored for contingencies as needed. If necessary, they dispose of non-productive assets such as utensils, jewelry or other household items (Chen, 1991, pp.101-127). When no other options remain, they dispose of key productive assets, preferring mortgage to outright sale (Chen, 1991). Under conditions of extreme shortage, some households are forced to take “drastic measures, such as migrating in search of food or abandoning a spouse or children” (Chen, 1991, pp.101-127). As noted by Rahmato (1991, pp.137-157) the “sale or mortgage of assets or recourse to migration becomes operative at a later stage when other devices have by and large already been exhausted and should be regarded as true indicators of distress in a given scarcity period”.

Examining farmers' response to drought in Southern Africa, Anderson *et al* (2009, pp 36-37), note that “transhumance, or the seasonal migration of livestock, has long been recognized as an effective means of evading unfavorable climatic effects, such as drought, whereby moving domestic livestock across a landscape allows maximum forage use across a variety of climatic regimes and events”. Transhumance migration has long been proven to be effective not only in southern Africa, but in other part of the world such as in Ethiopia, Kenya, Tanzania, India, Bangladesh and Sahel (Web and Reardon, Chen, 1991, Rahmato, 1991, Anderson *et al*, 2007). Learning from southern Africa, Anderson *et al* (2007) demonstrate that drought migration requires the movement of livestock and often entire families. While migration has proven to be effective in weathering the effect of drought it requires

considerable effort and adjustment. In order to move, “farmers need networks and social linkages that extend into other ecological zones not created by drought. These networks need to be strong, and are often affected through family connections, as securing tenure in distant places can be controversial” (Anderson *et al*, 2007, p 38). In this context, transhumance remains a challenge in South Africa, where land ownership remains a contentious issue.

In Kenya pastoralists successfully were able to cope with droughts. One was to maintain exchange relations with neighbouring agricultural counterparts with whom they exchanged livestock and animal products for grains to supplement their diets when the production of milk went down. The Maasai, for example, traded with neighbouring agricultural groups such as the Kikuyu from Central Kenya where they obtained cereals in exchange for their livestock products such as milk, hides and skins (Orindi, Nyong and Herrero, 2008). Under extreme cases, the Maasai have adopted non-pastoral activities like charcoal-burning or engaged in various forms of employment for income. In some cases, raiding of neighbouring communities was also carried out to restock (Orindi, Nyong and Herrero, 2008). In addition, many households or families keep animals with relatives and friends elsewhere to guard against losses through drought. Animals kept elsewhere always come after a disaster, as pastoral families are able to restock quickly (Makali *et al* 2009).

Indigenous response to disaster has a gender dimension. During famine as a result of drought, the labour division in the family remains distinct. “Women are with the management of all immediate consumable food resources and men are responsible for managing other assets of the family or entering into reciprocal deals with other family for purpose of mutual support and exchange” (Mortimore, 1989, pp.65-67). Parents who have family in unaffected areas send their children to their relatives to be cared for during times of drought (Rahmato, 1991, pp.167). Peasants may travel long distances to a distant area unaffected by the drought to borrow food from a relative, a friend, or someone with whom such arrangements can be made (Rahmato, 1991, pp.167). Brewing beer is also an important source of income, especially for rural women, and a reduction in grain ingredients caused by drought can affect their income and nutrition.

Nchabeleng (1999), examining poor rural households of the Northern Province, KwaZulu-Natal and Eastern Cape, where restructuring of old age pensions has led to some pensioners being removed from the pension roll, found different coping mechanisms that have been employed as a result of this sudden shock. Households that had family networks, such as working children and households which had savings and small businesses and were not fully reliant on pension money, were less vulnerable than households that had no family ties or reserves. The latter group was forced into a series of coping mechanisms such as borrowing or cutting back on food intake or taking children out of school. These actions made the households even more vulnerable.

3.14.4 Recovery from drought

Are households able to return to their previous state of development after the drought has passed? The answer to this question is provided by Moser (1998) in his resilience and sensitivity approach. Moser (1998) believes that the nature of assets and risk management strategies are critical if one needs to understand how individuals or poor households recover from disaster. Here 'asset' refers to sources of income such as employment and social capital, which includes the social networks, skills and institutions responsible for disaster management. Moser (1998) reaffirms that the level of vulnerability to disaster and the ability to recover from it, is determined by the quality and quantity of assets owned by an individual or a household.

Chambers (1983), using a case study in India showed that, following drought years, a decline in assets led to a circle of poverty, or what he calls "asset depletion-replenishment cycles" where it is believed that those best able to replenish are those least depleted. This argument demonstrates how the lack of buffers to resist shocks can lead to other "ratchet" effects that could result in a household becoming permanently vulnerable to poverty. Wisner (cited in Oelefse and Dodson, 1997) contends that individuals or households who are highly vulnerable to injury, death, and loss of property and disruption of their livelihood patterns are usually those who find it difficult to recover from disaster. Davies (2000) argues that the degree of resilience and sensitivity is important in explaining how households or individuals respond to changes in order to return to their previous state.

3.15 Bridging indigenous knowledge and public policies and western science

This section discusses and suggests ways in which indigenous knowledge and public policies could be integrated, particularly in an African context. "Indigenous knowledge and Western science are best regarded as complementary, or parallel systems of knowledge, rather than as fundamentally incommensurable" (Opoku, 2005).

Indigenous knowledge has demonstrated strengths and weaknesses. It has been proven to be successful and important in many areas, such as health, environmental conservation and disaster management and in dealing with many other external shocks. Therefore, the need to bridge IKS and public policy is imperative. The significance of bridging and integrating IKS with public policy has been recognized by a number of writers and has been included in a number of government structures. However, it has not been put into practice very often. Proponents of IKS integration into public policy, such as Hoppers (2002), Opoku (2005) and Briggs (2005) share the view that bridging IKS and policy is important and that neither of the two systems should necessarily dilute the essence of the other, nor should they invalidate the underlying principles of either system. Rather, integration of the two systems should be considered within the context of transfer of knowledge and responsibility from a higher to a lower level within an established and intact framework (Opoku, 2005). Hoppers (2005) claims that neither IKS nor public policy, nor modern science are inherently good or bad; what is most important is the impact they can have on the attainment of collective goals and benefits.

Opoku (2005) observed substantial gaps and weaknesses in IKS, public policy and modern science, and suggests that their integration can provide a supportive relationship that protects the rights of associated members. He adds that states, companies, and communities alone do not possess the resources needed to promote broad-based, sustainable development. Complementarities and partnerships forged both within and across these different sectors are required to achieve the desired goals. Similarly, the United Nations (2005) argues that

incorporating IKS into policy will yield complementary results especially when representatives of public institutions, the corporate sector, civil society and grass roots communities can establish common forums through which they can pursue common goals. While there is no substantial examples in South Africa, learning from the past and the present, a good model of bridging IKS and public policy, which is, however, also surrounded by controversy, is the colonial British system of indirect rule in the West Africa. It not only relied on indigenous institutions as agents of local government administration but also assisted these institutions to develop their own policies and decisions which were best suited and adapted to communities, values and beliefs (Opoku, 2005). Opoku observes some form of complementarities in the process of decision-making, despite the fact that such collaboration has been eroded with increased globalization (Opoku, 2005). Examining the role of indigenous knowledge in environmental impact assessment in Ghana, Opoku (2005) suggests an approach for the integration of IKS in environmental impact assessment policy. One approach is the establishment of co-operative management boards at the community level. A co-operative management board must be an institutional arrangement in which formal government agencies with jurisdiction over resources and user groups and communities enter into an agreement covering a specific geographic region and spell out the following:

- a) Systems of rights and obligations for those interested in the communal land resource;
- b) Collection of rules indicating actions that stakeholders are expected to follow under specified circumstances;
- c) Procedures for making collective decisions affecting the interests of government, user organizations, and individual users (Opoku 2005).

Opoku refers to the Beverly-Kaminuriak Caribou Co-management board in Canada's Northwest Territories or the Co-management of Beluga Whales in Northern Quebec where improved communication, learning and understanding between indigenous institutions and official government agencies have improved environmental impact assessment (Opoku, 2005).

Experts who serve in public policy decision-making are often chosen on the basis of their academic and professional qualifications. Indigenous people, who are

recognized as experts in their respective communities by virtue of their extensive knowledge and understanding of the local ecology, value-sets, environmental resource use and nuances could also serve as partners with Western-trained policy makers or scientists on these boards. Opoku suggests that the criteria for “appointing experts to serve on these boards should include a demonstrated experiential knowledge of local issues and ecological issues” (Opoku, 2005, pp.120). A policy to encourage documentation and the use of indigenous ecological knowledge in the form of technical dictionaries, videos, training manuals and other educational materials would also be helpful in the review, implementation, monitoring, and evaluation stages of policy formulation and implementation process (Opoku, 2005). Such a policy may also be helpful for verification and validation of indigenous knowledge, particularly in relation to its positive contribution to sustainable development (Opoku, 2005). Opoku suggests that documentation of indigenous knowledge could, at least, provide historical records and the sequencing of events and would be useful in predicting the environmental impact of a project.

Khor (2002) suggests that such a board commission fact-finding, including consultations with stakeholders, to identify valued ecosystem components and make decisions about study boundaries. This process requires a thorough understanding of the cultural context and value sets held by the local people. The local experiential knowledge of rural people and their leaders could be extremely helpful in this regard (Khor, 2002) and Opoku (2005). This could be expanded to include local people who are recognized as experts within their communities by virtue of their extensive knowledge and understanding of the local culture and environmental resources. In other words, the criteria for selecting members of the cross-sectoral review committee could include a requirement for an objective understanding of the affected local communities including local resource use, nuances, value-sets and local experiential knowledge (Opoku, 2005). Indigenous people who are regarded in their communities as experts in local matters could be co-opted to help in the assessment and prediction of impact of a proposed project. Efforts could be made to help potential participants, especially the marginalized, to recognize that their local experiential knowledge is valid and useful in local matters and problems affecting them (Opoku, 2005).

3.16 Challenges in bridging indigenous knowledge and public policy

There are challenges to successful integration of IKS in public policy. The first is how to overcome the entrenched attitude of contemporary scholars and policy makers regarding other ways of knowing. As a result, they fail to perceive the intrinsic value of indigenous knowledge systems. Another constraint is the rapid loss of indigenous knowledge worldwide, in part due to the spread of a global consumer culture and the effects of western education on both adults and the younger generation. Opoku (2005) suggests that the integration of IKS in the policy-making process may become part of the solution to this constraint. To achieve this he suggests that such a process may require structural changes, as well as changes in the attitudes and perceptions of planners, governments and policy makers in developing countries (Opoku, 2005). How can this be achieved? This will be discussed later at the end of this section.

The objective of public hearing consultations in the environmental impact assessment process, health, disaster, etc., is to provide an opportunity for a healthy exchange of views leading to conclusions that make it possible to improve, accept, or reject a proposal that constitutes a threat to the quality of life and the environment. Yet, ignorance and linguistic barriers make it difficult for indigenous people to participate effectively in hearings conducted in English and other foreign languages. The process of simplifying issues or translating scientific jargon for lay understanding is often fraught with problems.

Learning from Ghana, Opoku suggest that such constraints could be overcome “through community based action research and intensive public education by the media, national and international conferences to raise awareness of the value of indigenous knowledge, formal education system, and with the help of non-governmental organizations (NGOs) via national and international networking” (Opoku, 2005, p.121). By their composition, membership, and orientation, most of these organizations could break linguistic barriers between members of indigenous institutions and government agencies. In addition, measures could be taken to

empower leaders of indigenous institutions and to provide the means and incentives to participate effectively in local matters (Opoku, 2005, p.121).

3.17. Conclusion

This chapter covered the review of the literature and was divided into two parts. Part one reviewed the literature on drought and part two reviewed the literature on indigenous knowledge systems. It is argued throughout literature that drought is a complex phenomenon with multidimensional approaches in mitigating its effects. The literature also demonstrated that the effects of drought and community vulnerability to drought largely depend on assets and resources available to the community and its responses to drought will largely be determined by the quality or quantity of assets particular community may have at its disposal. The literature also provided the history of drought in South and responses from both the government and communities. It also discussed the International responses to disasters including drought.

Part two of the literature has shown that IKS is old, universal and engraved in intuition and deals with a number of variables. IKS is still popular in some communities; especially those not influenced by modern forms of knowledge, and are intertwined in their ways of life. It is difficult for its proponents to prove to the scientific world the power such knowledge holds in dealing with many aspects of life. Like modern knowledge IKS has experts. As this review has shown, IKS has strengths and weaknesses.

However, for the common goal of achieving the well-being for all, it is desirable that respective strength is built upon through co-operation and mutual exchange of experiences. Positive attempts of collaboration have been reported from some developing countries. This review has shown that an effective, user-oriented, community-based partnership between the modern indigenous knowledge holders should be implemented. However, there has been relatively little experience in this regard. There is not much data on indigenous knowledge and drought management.

While it was important to discuss the South African government responses to drought in this chapter, I opted to discuss this in chapter six, where detailed government policies on disasters are provided and then analyzed in response to drought in Msinga. Here the questions are to look at the policies and then see how these have been translated into drought of Msinga. As discussed earlier, the findings of this investigation could help decision makers in the field of disaster management and drought in particular to identify areas of co-operation between them on the one hand, and policy-makers and the community on the other, so, as to alleviate the intolerable burden drought and poverty places on communities in rural areas, such as Msinga .

CHAPTER FOUR

THEORETICAL FRAMEWORK: SUSTAINABLE RURAL LIVELIHOODS FRAMEWORK

4.1. Introduction

This thesis is informed by a sustainable rural livelihoods approach (SRLA). This approach entails the complex range of assets, activities and relationships upon which poor rural people and households depend for their livelihoods and survival (Sanderson, 2000). The SRLA approach also addresses the whole range of policy issues relevant to the poor, such as access to health, education, finance, markets and personal security and how all of these combined can assist poor people to adjust to changing living conditions (Sanderson 2000). Through the perspective of the SRLA, this study explores the rural communities of Msinga and their livelihoods in order to understand how the government and social support assist or aggravate communities' vulnerability to the drought prevailing in the area. The discussion on sustainable livelihoods in Msinga is discussed in Chapter Six, and this chapter has as its focus the concepts in literature about sustainable livelihoods. This chapter starts by providing a brief historical background of SRLA, followed by the definition of SRLA, linking sustainable livelihoods to indigenous knowledge systems, components of the SRLA, bridging social capital and public policy, the role of social capital in disaster management and lastly the conclusion.

4.2. Brief Historical Background of Sustainable Rural Livelihoods Approach

The SRLA is considered to be one of a number of analytical frameworks which deal with the dynamic dimensions of poverty and well-being, examining capability assets which poor people, households and communities employ to maintain well-being

under changing living conditions. Understanding the sustainable livelihoods approach helps to know how to intervene in order to promote poverty eradication. The sustainable livelihoods approach is a useful tool for identifying the linkages between the different issues which lead to a situation where a particular group of individuals are vulnerable to external shocks (Department for International Development, 1999).

The SRLA has its conceptual roots in various traditions, including applied social science, agro-eco systems/farming systems analysis and especially participatory approaches to rural development (Norton and Foster, 2001, p.12). The SRLA evolved in the last four decades. In the 1970s the focus of development was on employment creation as the way of alleviating poverty. This opened up new avenues and debates on how poor people in developing countries, especially the South, survive and how they construct their lives. Since the 1970s the SRLA has become increasingly popular in development thinking as a way of conceptualizing and understanding the economic activities that poor people undertake to alleviate poverty, to resist external shocks and to adjust to changes in living conditions (Carney, 1998, p.3). In the 1980s, with the development of a practical social research method, known as Participatory Rural Appraisal (PRA) by Robert Chambers (1983), the SRLA became widespread in international development practice, predominantly through its use by non-governmental organizations (NGOs) (Adato and Meinzen-Dick, 2002, p.3). Today the SRLA is widely used by development agencies, governments and NGOs to reduce poverty.

4.3. Ways of defining SRLA

The SRLA has been the subject of debate and analysis and has been widely interpreted. While the concept 'livelihood' combines both capabilities and assets required to sustain a living, De Satge et al (2002, p.59) argue that a livelihood is sustainable when it can cope with and recover from shocks and stresses and maintain and enhance its capabilities and assets both during normal times and during uncertainty, whilst not undermining the natural resource base. Sanderson (2000, p.27) on the other hand, asserts that sustainable livelihoods entails

capabilities, assets (both natural and social) and activities required for a means of living. He believes that the combination of both natural and social assets can yield fruitful results which in turn can assist poor households to resist external shocks. Ellis (2000) believes that where natural and social resources are weak, the organizational and institutional environment within which poor people draw upon assets of different types can play a critical role in strengthening the ability of the poor to withstand external shocks.

Analyzing sustainable rural livelihoods, Johnson (2002) identifies two major categories of resources which assist individuals and households to sustain lives and livelihoods and protect assets from erosion in times of uncertainty and shocks. Natural and social resources can make a huge contribution to the management of external shocks, if these are built on a solid basis. The quality and nature of natural resources can boost or undermine the ability of individuals and households to weather shocks or leave it poorer (Johnson, 2002). Where there are strong social resources, social and institutional relationships can facilitate the process of value and productivity which in turn can improve the living conditions of the poor and their ability to withstand external shocks (Johnson, 2002).

Analyzing both natural and social resources from a livelihoods point of view, Moser (1996) argues that both physical and social resources can play a critical role in determining the relative resilience of individuals and households in the face of adversity. Alongside social and natural capital (resources) Coleman (1990) and Gaventa (1996) (both cited in Johnson, 2002, pp. 6-8) distinguish two other important categories: "human and economic" capital. Human capital is the skills, "knowledge and intelligence that an individual holds at any point in his or her life time". Skills can facilitate the production of assets which in turn can sustain life. The authors argue that skills and knowledge can be brought together by broadening one's social relationships, or investing economic capital. Scoones (1998) suggests that the best way for poor people to mitigate the effects of external shocks and to reduce vulnerability is to have several different ways of making a living and combine assets in such a way as to obtain the maximum contribution toward livelihood stability and sustainability.

To achieve this diversification, assets are important as they appear to be a very important “safety net” in enhancing the sustainability of livelihoods (Scoones, 1998, p.74). Scoones maintains that the degree “of diversification may be related to the resource endowments available and the level of risk associated with alternative options, which include asset accumulation to protect against external shocks, spreading activities associated with livelihood strategies over time and space to prevent a particular risk from affecting the entire livelihood system”. Concurring with Scoones, Moser (1996, p.24) proposes the following classification of assets that can be diversified and which can assist individuals or households to recover from shocks:

1. Labour, the most important asset of poor people;
2. Human capital, including health status, skills and education;
3. Productive assets, such as land and housing;
4. Social capital, manifested in reciprocity within communities and between households based on social ties, and
5. Household relations, as a mechanism for pooling income and sharing consumption.

Moser (1996, pp.24-46) contends that households' access to or ownership of these assets - in whatever combination - can be used as indicators of relative vulnerability and the level of resilience. To withstand threats and shocks, households need to be able to cope with adverse periods without eroding their 'asset base'. Households are extremely vulnerable when their assets become so depleted in the face of hardship that the coming to an end of the adverse period cannot reverse the damage (Moser, 1996, pp.36-41).

Taking into consideration the level of unemployment, the level of formal education and the economic status of the communities in Msinga, there is a reason to believe that the livelihoods in the area are limited to some degree and that their sustainability poses serious questions (see chapter two). As Norton (1997) contends, livelihoods approach provides a framework to address the whole range of policy issues relevant to the poor. She believes that while access to health, economy and education is

important, the most important priority is to provide access to finance, markets, and personal security.

The sustainable livelihoods approach emphasizes what Norton (1997, pp.7-14) calls “sustainability, with a people centered and participatory approach, responsive to changing circumstances, and capable of working at multiple levels from national to local, in partnership with public and private sector”. As Carney (1998, pp.4.14) points out, “livelihoods approaches work with people, supporting them to build upon their own strengths and realize their potential, while at the same time acknowledging the effects of policies and institutions, external shocks and trends”. This approach provides the basis for identifying the constraints to livelihood development and poverty reduction in rural communities.

However, social capital alone may do little to change or equip individuals or households to adjust to external shocks. In this regard, health, education, finance and market systems can assist in building sustainable livelihoods. Moser (1996) believes that when individuals or households have access to decent health systems, access to finance and the market system, further, when these “complex portfolios” are well managed and brought together, this can affect both the process of asset accumulation and individuals or households’ vulnerability to external shocks. For instance, Stafford, De Silva, Stansfield & Marmot (2007) and Poortinga (2006) noted that lower socio-economic status seems to be associated with lower health status.

This is applicable to the Msinga community. As demonstrated in Chapter two, the level of HIV/AIDS is high in the settlement. Access to the market and finance is limited in the area. There is a limited external assistance such as government programmes to combat poverty and other development programmes (See Chapter Two). Moser (1996) and Siegel and Alwang (1999) agree that assets can have varying forms which would include those that are natural, physical, human, social and financial and when these are combined and well managed together, it generates well-being and resistance to any kind of external shocks. The nature, quantity and quality of natural, social, and economic assets is an important indication of vulnerability as individuals or households themselves are endowed with different amounts of resources with a number of factors equipping them to cope with changes

differently. The greater the assets, the less will be the extent of vulnerability or *vice versa* (Moser, 1999).

4.4. Linking sustainable livelihoods to indigenous knowledge

By definition, everyone in a particular community has access to IKS or social capital in one form or another; hence they represent a common starting point for strengthening adaptive capacity and sustainability (Dixon, 2005). By livelihood is meant both a system of activities and a condition of being within the context of particular cultural-economic, historical, geographical and political dimensions (Von Kotze, 2002). For instance, Potteir *et al* (2003, pp.15-17), examining the relationship between IKS and livelihoods, argue that IKS does not only refer to knowledge shared by people in the same environment, but also the skills, techniques or survival strategies and social ties that people possess which in turn can facilitate maintain a well-being. In this context, indigenous knowledge and livelihoods can be understood as a set of skills and actions which facilitate maintain a well-being and adapt to changes in living conditions in the meantime enhancing capability to resist an external shock (Dixon, 2005, and Von Kotze, 2002).

For instance, in the western world, a livelihood is often linked to one job, one occupation, one form of employment as the means of support and survival for oneself or household. In Africa, poor people generally maintain a range of different activities to generate and maintain a livelihood through indigenous knowledge. One question to keep in mind when analyzing the relationship between indigenous knowledge and a livelihood, is to ask what does one know and need to know in order to make a living, and how does he/she learn it? The response to this question is that indigenous knowledge and livelihoods are intertwined, difficult to separate from one another.

4.5. Components of sustainable livelihoods

The sustainable livelihood approach is made up a number of components, but all are embedded in the concept of social capital. In this study the focus is paid to the

concept of social capital to explain how the level of social capital has enabled or impeded on community of Msinga to adjust to drought conditions prevailing in their settlement.

The concept of social capital derives from both economics and the social sciences. In general, the aim of social capital is to understand the role of conventional and unconventional networks based on trust, kinship, and the role they can play in the process of managing external shocks, such as poverty, illness or natural disasters and how it can facilitate or impede on the acquisition and flow of assets (Putnam, 1993, Putnam and Feldstein, 2003).

4.5.1. Social capital and social networks

Given the multidimensional role that social capital can play, it has also been given a number of definitions. Putnam (1993), and Putnam and Feldstein (2003) suggest that social capital can be understood as a set of motions, in daily interactions between human beings, built on kinship and friendships, involving sharing of resources, physical and non-physical, or labour resources which can help withstand any change, reduce transactions and help adjust to sudden change in living condition. While social capital plays a critical role, there are additional requirements for it to be effective. One of these is that collective effort is important as it facilitates everyone pulling in the same direction, defending the interests of members and achieving the desired ends. In this context, Putnam and Feldstein (2003) claim that the foundation of social capital is families' networks and local community associations guided by norms, and built on trust and reciprocity that facilitate monitoring and co-operation for mutual benefit.

Putman believes that when all these elements are brought together, they can generate productivity which in turn can sustain lives. Putnam's views on social capital are supported by the World Bank (WB) (1998). The World Bank (1998) asserts that social capital is not the sum of the formal and informal institutions which underpin a society, but a bridge that holds these institutions together which can help members cope and adjust to any sudden shocks and change. Social capital is a continuation of human action that can be referred to as skills that an individual gains

through formal and informal education *via* social networks that can help them improve performance and increase economic benefits.

It is important to note that social capital can be transformed into diverse aspects such as providing information to members, information related to job opportunities, and market niches in both informal and formal economies, which can speed up recovery from shocks. Discourse on the positive significance of access to network resources, shows that individuals get right of entry to social capital by means of membership in social networks and institutions. This can be converted into different forms of assets in order to improve livelihood strategies and thus enable a smooth adjustment to economic and social change during times of uncertainty. Nchabeleng (1999), examining the role of social capital and social networks in the Northern Province, KwaZulu-Natal and Eastern Cape, where restructuring of old-age pensions led to some pensioners being removed from the pension roll, concludes that social network played an important role in the maintenance of livelihoods. Households that had family networks, such as working children, were less vulnerable than households that had no family ties. Households that had no network connections were forced into a series of coping mechanisms such as borrowing or cutting back on food, and taking children out of school. This, in turn, made these households even more vulnerable.

4.6. Bridging social capital and public policy

The literature on social capital and public policy focuses on the ideas of bridging the relations between communities, government and NGOs in the process of achieving the desired ends. Narayan (1999, pp.237) suggests that in a society where there is good governance and well-established social networks, bridging social capital and formal institutions can bring complementarity between the state and the community: the desired goals become easily achievable. He believes that incorporating social capital into policy yields remarkably complementary results, especially when representatives of the corporate sector and civil society establish common forums through which they can pursue common goals. The notion of bridging social capital

and public policy is crucial as it creates a climate of trust and accountability between communities and formal institutions involved in the process of decision-making.

Woodcock and Narayan (2000, pp.236) claim that “neither the state nor the societies are inherently good or bad; governments, corporations, and civic groups are variable in the impact they can have on the attainment of collective goals”. The World Development Report (2001, pp.33) contends that bridging social capital and public policy can reduce poor people’s vulnerability to disasters and help them cope and adjust to diverse shocks when they occur. Woodcock and Narayan (2000, pp.38) assert that in bridging social capital, the public and private sectors provide supportive relations that protect the rights of associated members. They go further and argue that “states, firms, and communities alone do not possess the resources needed to promote broad-based, sustainable development; complementarities and partnerships forged both within and across these different sector are required” to achieve desired goals. In principle, the stock of social capital in a country could be measured by the value of the assets possessed by a community which can include money received in the form of government subsidies and voluntary donations from independent bodies, and also the size and density of their members and networks. Bridging social capital and public policy can impact on other policies that were not initially designed to address social capital.

There is reason to believe that many policies have a social capital effect. According to Cox and Caldwell (2000), these effects vary in terms of significance and importance when policies are translated and designed through a social capital lens. Existing strategies or policies could be linked to social capital. For example, strengthening human capital through better access to public services and income improves the quality and quantity of human capital (Cox and Caldwell, 2000, pp.43-47). Cox and Caldwell (2000) suggest the following list of questions to analyze policies and programmes to ascertain their social capital potential:

- “Does the policy increase people’s skills to engage in social activities with people they do not know - their sociability?
- Does the policy target some groups at the expense of others, or create feelings of scape-goating or exclusion?

- Does the proposed form of service delivery allow the building of informal relationships with all stakeholders?
- Does the project help extend networks, confidence and optimism among participants?
- Do participants increase their capacity to deal with conflict and diversity?
- Does the programme evaluation include the social as well as financial and individual aspects of outputs and outcomes?
- Does the body delivering the programme itself affect the way people see the programme?
- What message does the programme offer to people about their own values and roles?
- What impact does the programme have on attitudes to formal institutions of governance?"

These questions are useful in the process of analyzing existing policies and for the design of new policies taking into account the meaning and influence of social capital. The incorporation of social capital into public policy considers not only how social capital can be included in policies. External factors also play a major role and these need to be given attention when designing policies.

Where social capital has been eroded by political and economic changes it becomes difficult for rural households to adapt and cope with risks. In the Limpopo Basin of eastern Botswana, the "*Kgotla*, or traditional institution for local decision making and administration of justice, played a central role in adapting the local community to climate variability by regulating resource use and maintaining and disseminating traditional knowledge for the use of veldt products" (Burton *et al*, 2008, p.18). Communities and decision-making institutions worked together, where the views and inspiration of the communities were incorporated into final decision.

The assessment and integration of social capital in public policies must feature a number of elements: (1) participatory governance, meaning the inclusion of civil society and the community into the process of policy making, (2) trust, norms and networks for collective action between and in government structures have to be built

up to create an enabling environment for social capital. In post- apartheid South Africa, the inclusion of civil society and the population into the public policy process was an approach that brought together both social capital and public policies (Kumlin and Rothstein, 2005, pp.339-347).

4.7. The role of social capital in disaster management

This section focuses on the role of social capital such as social networks, social cohesion, social interaction and solidarity in mitigating the consequences of disasters on the communities.

The section places emphasis on social capital at three levels: Bonding within communities, bridging communities, and linking communities through ties with financial institutions, NGOs and government institutions. Light (2005) argues that coordinating communities and the activities of private and public institutions is crucial in strengthening social capital at grassroots level, as this process allows all stakeholders involved in the process to collectively identify key strategies to reduce the impact of disasters. Enhancement of social capital with combined efforts on the part of government, NGOs and communities allows for a stronger, more cohesive response to drought. Snowden (2005, pp.1-8) contends that community's social capital reduces its vulnerability to disaster if this is built on trust and reciprocity. He adds that "the effective utilization of social capital is crucial in the building of community and institutional capacity in disaster management".

When community's assets are eroded as a result of drought, communities have nothing to fall back on. As Mathbor (2007, p.18) observes:

Long-standing relationships that are developed among different elements of communities, the government and other organizations, including financial institutions and voluntary agencies, have generally assisted in mitigating the consequences of natural disaster. Their effectiveness in working together has proved crucial in mobilizing a community's resources, expertise, professionals and volunteers before disaster strikes and in the recovery work that takes place during and afterwards.

In times of drought, family, kinship and caste relationships play an important role as members of these groupings frequently loan one another small amounts in cash or in kind, and, if a particular household is needy, make outright gifts in cash or kind. Light (2005, p.27) argues that kinship networks offer various mechanisms for adjusting to uncertainty in both production and consumption: “to manage short-term consumption needs, women turn to other women in the same kinship group to borrow small amounts of foodstuffs, the fuel, fodder, etc. and richer kin often extend charity to poor kin”.

4.8. Conclusion

This research used the sustainable rural livelihood approaches SRLA's. It has been indicated throughout that sustainable rural livelihood approaches place people and their priorities at the centre of development. They focus on poverty reduction interventions on empowering the poor to build on their own opportunities, supporting their access to assets, and developing policy and institutional environment built on grass root community needs and available resources. SRLA's are necessarily flexible in application, but are based on certain core principles such as people centred, dynamic, and building on strengths, macro-micro links and sustainability. In addition to these principles, livelihood approaches are based on a conceptual framework which places people, particularly rural poor people, at the centre of inter-related influences that affect how these people create a livelihood for themselves and their households, their access to social, human, physical, financial and natural capital or assets, and ability to put these to productive use. It has been argued that sustainable rural livelihoods can only be achieved if natural, economic and social resources are themselves used in sustainable ways. The relevance of this framework to the study area is found in Chapter Six, the findings.

CHAPTER FIVE

RESEARCH DESIGN AND METHODOLOGY

5.1. Introduction

The objective of this study is to explore communities' indigenous knowledge and government response strategies to drought in Msinga. It is intended that the data obtained would identify communities' indigenous knowledge and government response strategies that would serve as points of reference to the drought management prevailing in Msinga. This chapter covers the following sections: research design, method of selecting the sample, the sample selected, data collection procedures, focus group discussions, individual interviews, language and culture, negotiating access and adaptation to local settings, other sources of information, data analysis, confidentiality, informed consent, ethical considerations, and conclusion.

The research objective was: to identify and understand the role of traditional knowledge in the process of drought management that prevails in Msinga. It aimed to establish how the effectiveness of such knowledge is measured by community members in Msinga and investigate available policies and the institutional framework by further demonstrating how such initiatives could assist the rural population at Msinga to adjust and cope with the effects of drought.

5.2. Research Design

This study employed a qualitative interpretive approach. The key focus of qualitative interpretive research is subjective perceptions and understandings. These perceptions and understandings come from experience, objective actions or behaviours and from the context in which this occurs (Ulin *et al*, 2002). A qualitative

interpretative method offers systematic, controlled, valid and rigorous establishment of associations of methods that permit the accurate prediction of outcomes under a given set of conditions (Kumar 2004:16). In this study, the qualitative interpretative approach allowed the researcher to capture and understand more fully the interpretation of experiences and variations in participants' responses from their own context and experiences (Ulin, et al, 2002). Because there is a need to understand attitudes, feelings, meaning, variations and interpretations of social action, it was important to have a qualitative interpretative approach to examine why the observed patterns exist and the interpretations and implications attached to these (Babbie and Mouton, 2001). As in most qualitative studies, the aim of this study was not only to investigate in some depth rural communities' IKS responses to drought, but also to elicit what Geertz (1973) referred to as "thick descriptions" of actions and events in individuals' lives. For these reasons, data collection methods involved focus group discussions, personal interviews, observation and photography, unstructured interviews, and policy review.

When using any data gathering techniques, it is always useful to be aware of their strengths as well as their limitations. Qualitative methods, as with any techniques, have their own set of limitations. As qualitative data are not directly observable, it depends on participants' ability to reflect upon, discuss, and effectively communicate aspects of their experiences. Furthermore, reflection on an experience may serve to change the way an individual interprets his/her own experience (Polkinghorne, 2005). Additionally, as this is a qualitative interpretive study, it relies largely on the ideas and interpretations of the researcher. This means that the researcher needs to be aware and critically reflexive of his own role and influence in the process, as well as his own constructed understandings.

5.3. Method of selecting sample

Qualitative research focuses on exploring, describing, and understanding human experience through the collection of intense, full accounts of the issues being researched. Participants of qualitative research studies are therefore chosen, not because they meet statistical requirements, but rather in terms of their ability to add

to and enrich the structure and character of what is being studied (Polkinghorne, 2005). Therefore, those individuals who can provide the most insight into an experience are generally those who have had experience and who can provide rich information.

For this study, participants are homogenous in terms of language, ethnicity, culture, socio and economic backgrounds. They are all heads of households and live in the same environment affected by the drought. They are Zulu-speaking and are at least 19 years old. In addition, participants were selected according to age and gender. The minimum age was chosen since it is adults who usually head households. This does not deny that many households in rural KwaZulu-Natal are child-headed due to the many factors causing children to have lost both parents.

In addition, key informants were selected according to their seniority and the role each played in the community and the quality of information they might have which would be considered useful. DeVaus (1986, p. 68) argues that “purposive sampling is a form of non-probability sampling where cases are judged as typical of some category of cases of interests to the researcher.”

5.4. The sample selected

The research has used a random and judgmental sampling method. Babbie and Mouton (2004) argue that a random and judgmental sampling method may appropriately look at the nature of the research and its aims. This sampling method also helps the researcher to use his/her judgment. Saunders *et al* (2000, p. 174) advises researchers to “select cases that will best enable him/her to answer the research question (s) and meet his/her objectives”.

A total sample size of 120 heads of households from both Mabaso and Mbovu participated in focus group discussions. The sample was heterogeneous as it was composed of both men and women. There were 60 heads of household from Mabaso and 60 heads of household from Mbovu villages. Here, household is understood as a unit, composed of the members of a family who live together under the same roof, while the head of household is understood as a person in charge of

all managerial activities and responsible for household needs. The selection of heads of households was justified by the fact that the researcher assumed that heads of household would be better equipped to respond to the questions presented by the interviewer as they deal with all the households' managerial decisions and the allocation of food during periods of drought. It was therefore expected that they would be informed about drought in the area.

Another set of individual interviews was conducted among local authorities. These was composed of traditional leaders/*amakhosi*, traditional healers, community based-organizations, religious leaders and local government, representatives within the selected settlements. Both Mabaso and Mbovu were equally represented. Each village area was represented by one traditional leader, one religious leader, one traditional healer, and one local councilor, and a member of the local municipality in charge of water and disaster management in the municipality. Participants in this category were interviewed with respect to their drought management-related activities, their experience, knowledge, and perception of drought in the areas, opinions on communities' drought response strategies and their proposals on drought management. The rationale behind interviewing community leaders is that they represent communities in all aspects of community activities, social, cultural, and economic including that of droughts.

5.5. Data Collection Procedures

This section discusses procedures and methods that have been used in data collection. There are two major data collection procedures that have been adopted: focus group discussions and personal interviews. In addition, observation, photography, unstructured interviews and documentary review has been used. These processes are discussed further in the following sections. More than one method was used to obtain richer findings, defined as the process of triangulation. According to Babbie & Mouton (2001), triangulation is advantageous in social research in that it eliminates biases resulting from single-method studies. Triangulation was done in this study by means of comparison of findings from focus

group discussions, to individual interviews, policy review and researcher own reflexive role and influence in the process of analysis.

5.5.1. Focus Group Discussions

Focus groups were chosen as an effective data collection method because they could give a wide scope of the population a voice regarding perceptions of drought and management. Additionally, focus groups provide formal examples of everyday speech within the community (Denzin & Lincoln, 2005), as well as providing direct access to inter-subjective experience, reflecting the social realities of a particular cultural group, and understanding attitudes and opinions regarding various social issues (McLafferty, 2004). Although focus groups may not easily provide access for the researcher into individual biographies, they allow observation of how knowledge and ideas both develop and operate within a cultural context (Kitzinger, 1994). This allows understanding of shared experience, as well as exploring differences between people who may be initially perceived as homogenous (Terre Blanche *et al*, 2006).

Additionally, focus groups are advantageous as they widen the range of responses, assist other participants in remembering forgotten details, and release inhibitions that may discourage participant disclosure of information (Catterall & Maclaran, 1997; Kitzinger, 1994). In a focus group, discussion is based on a particular topic, and group discussion assists in generating information. All groups, no matter how temporary, are subject to group processes (Catterall & Maclaran, 1997). In this study focus groups ranged from 10 to 12 participants who were recruited from various areas of Msinga villages and so were not necessarily acquainted with one another. Focus groups were therefore used in this study to provide insight into how the effect of drought is measured and understood and discussed between community members, and its associated emotions.

However, there are some limitations to using focus groups as a means of data collection. Although they may promote discussion amongst participants, they may also threaten the possibility of open discussion by all participants, and prevent any deviation from the accepted focus of the group (Kitzinger, 1994). There is the possibility of what Janis (1982) referred to as the “groupthink” phenomenon – where

it becomes difficult to extract individual perceptions and opinions from that of the group, and individual responses may be contaminated by the group. The exception to this is when group dynamics are sought specifically for the use of an intervention (Basch, 1987).

Additionally, focus groups are neither as useful as participant observation in providing contextual access nor understanding of phenomena, nor do they allow for the rich, in-depth understanding gained through individual interviews. Another criticism of focus groups is posited by Kitzinger (1994), who states that focus groups are sometimes simply used as a cost-effective method of interviewing several people at once. Group interactions are largely ignored, and in reading such transcripts it is often difficult to believe that there was more than one person in the discussion.

Although focus groups were deemed the most appropriate data collection method for this study because, as mentioned above, this thesis focuses on grass-roots perceptions and participation in drought and its management, a lack of participant interaction with one another was also observed in this particular study. Although focus group discussions may have some limitations, it was still advantageous in this study in that it allowed the researcher to explore the consensus in the ideas and opinions expressed by the groups, who, although not necessarily speaking and interacting with one another, did build on and follow on from one another's ideas when responding to questions.

Participants were identified with the help of traditional leaders and two Zulu translators, who are also members of the research team and therefore familiar with the area as well as the community. After the identification of participants, they were invited to participate in focus groups. Most of discussions took place in open spaces due to the lack of community halls. Only two group discussions took place in a church. Discussions were audio recorded by means of a voice recorder, transcribed and then translated into English. Prior to each focus group, consent forms were given to participants, confidentiality explained to them, and the process and reasons for the study. Ethical issues were also covered, both verbally and in the consent form.

In total, there were 120 participants from both Mabaso and Mbovu Msinga villages selected for the focus groups. The following table demonstrates the number of participants in each area and each focus group, age and gender of participants.

Table11. Demonstrates the number of participants in each area and each focus group

Gender	Male N=60	Female N=60	Total=120
Community/Village			
Mabaso	30	30	60
Number of Focus group	3	3	6
Number of Participants in each group	10	10	60
Age of participants	19-90	19-90	
Mbovu	30	30	60
Number of Focus group	3	3	6
Number of Participants in each group	10	10	60
Age of participants	19-90	19-90	

Each area was represented by sixty participants, who were then divided into six focus groups. Focus groups were held with divisions made according to gender. Groups consisted of community members who were the head of households and were over 19 years of age. Participants were divided into age groups in intervals of 10 years. For each age group both males and females participated in discussions. Male and females were put in separate groups. The aim of separating males and females was to cross check the information and see variation in view of both groups. Homogenous groups are also more effective in generating information (McLafferty, 2004). These age groups and gender divisions were selected because each age group is at a different developmental stage and could have different views regarding the topic. Different priorities are set according to one's life situations, and focus group discussions aimed at exploring drought perception in relation to its impact and management. In addition, in hierarchical societies age and gender tend to influence who is given the privilege to speak and it was important to incorporate all the possible voices in the research topic. Each group discussion lasted for approximately one hour and thirty minutes. The discussions were largely semi-structured, but were guided by a number of preset questions informed by the research questions (see Appendix 1).

5.5.2. Individual interviews- Key informants

For the purposes of this study, semi-structured interviews were used so that could categorize responses with more uniformity than unstructured. This allowed individuals to respond on their own terms. In the semi-structured interview, questions are normally specified, but the interviewer is free to probe beyond the answers to seek clarification and elaboration. "These types of interviews are said to allow people to answer more on their own terms than the standardized interview permits, but still provide a greater structure for comparability over that of the focused interview" (May 2001, 123).

The instrument used to gather the data was an interview schedule presented to key informants from community leaders. These key informants were selected because of their potential to provide necessary information that is relevant to this study (Bouma, 1996). Ten respondents were chosen as they are placed in key positions that allowed them to interpret community vulnerability to drought and who understood how drought is managed. Busha and Harter (1980, p. 56) argue that in the process of sampling, the "population can be very large or very small, depending upon the size of the group of persons or objects about which the researcher plans to make inferences". Based on this assertion, I argue that the selected ten key community leaders would be able to provide adequate information for this study and those interviews were a necessary part of the research methodology.

Interviews were conducted with the following people:

- Two traditional leaders
- Two traditional healers
- Two church leaders
- Two representatives from local organizations
- Two municipal officials

Municipal official and local organizations' representatives were interviewed in relation to disaster management policy and Acts and how they perceive effectiveness of the Policy and Acts in mitigating drought in Msinga.

5.5.3. Observation

Direct observation was considered a reliable method to establish resources available to the communities because first attempts to see regularity are usually based on what one sees. It involved establishing the level of access to water, electricity, means of income generation, housing typologies, and layouts, the condition of existing shelter structures and the accompanying infrastructure and social facilities. This was again used in dialogue sessions to find out how the communities determined the forms of drought in these areas and how these forms contributed to vulnerability to drought in the area.

5.5.4. Unstructured interviews

Unstructured interviews were very useful in providing relevant information to the study. Unstructured interviews took the form of informal conversations with members of the communities. Most of the conversations focused on the history of drought in the area, its impact in the area, the debates about poverty and how drought increased the level of poverty and vulnerability in the area.

5.6. Language and Culture

In any cross-language research, the researcher must always bear in mind that language is tied to social reality: language is an integral part of conceptualization and understanding of inherited values and beliefs (Temple and Edwards, 2002). Qualitative interpretive research holds that there is more than one correct way to describe the world. This means that although researcher and participants may understand one another's viewpoints through dialogue, each is a producer of unique, individual accounts, understandings, and viewpoints (Temple and Edwards, 2002).

When such accounts are then translated into another language, it is important to be aware that communication across languages involves more than simply the transfer of information (Temple and Edwards, 2002). It must be noted that translation of data from one language to another may distort meaning, thus changing how someone or something is perceived (Polkinghorne, 2005). Literature suggests that there is no "one" correct translation; no match-for-match wording. Rather, there is an array of

word combinations that can be used to convey meaning (Temple and Edwards, 2002). In addition to translating from one language to another, translators, rather than providing word-for-word translations, may then of necessity convey concepts and ideas between the researcher and participants. How knowledgeable the researcher is about the participants' culture also plays a significant role in research findings (Tsai et al, 2004). Overing (1987) argues that this should not cause over-anxiety. However, researchers involved in cross-cultural and translation research should be wary of the challenges for the participants and/or the researcher when terms used are not understood cross-culturally (Babbie and Mouton, 2001).

In this study, the researcher was aware that the target population could only speak *isiZulu*. It was planned that in the field work phase, the Zulu-speaking research assistants would do instant translation from English to *isiZulu* and back to English to record the responses and make use of recorders to capture what might have been omitted while translating. Before the interview process, the research assistants underwent a three-hour briefing session on how to conduct interviews and provide instant translation. In addition to a tape recorder, it was decided that the research assistants would keep diaries and record significant statements or stories which were not necessarily translated during the interview.

5.7. Negotiating access and adaptation to local settings

Taylor et al (2004) argue that in conducting research, the "initial challenge involves finding and negotiating access to a site". This is essential as it is likely to influence the process and outcome of the research. It is crucial to establish and maintain trust and rapport. The qualitative approach is expected to manage the issue of access effectively. Yet negotiating access remains a tricky process, as it requires engagement with individuals as well as being aware of group dynamics. Hamersley and Atkinson (1983) indicate that "negotiating access is a balancing act. Gains and losses now and later, as well as ethical and strategic considerations, must be traded off against one another in whatever manner is judged to be appropriate".

My experience was that negotiating access required patience, flexibility and networking with members of the community. At the beginning of this research, when I started visiting the research site and from meeting people from Msinga at the taxi rank I started liaising with community members. First I met with Mr. Stembiso at the taxi rank in Pietermaritzburg (PMB), with whom I exchanged telephone numbers and later became friends. Later, I identified two more graduate students from the University of KwaZulu-Natal who are from Msinga, who later became my research assistants. My first visit to Msinga in 2006 was hosted by Stembiso, who booked me into the hotel, explained to me about the area and introduced me to traditional leaders and the communities.

During the course of the fieldwork, I learned that it takes more than simply knowing Mr. Stembiso. I had to make my own efforts to get connected with traditional leaders and the communities as a whole. Permission was granted by traditional leaders, but the villagers and traditional leaders questioned my reasons for conducting the study. In Mabaso for instance, I was directly asked if my study had any political purposes and whether I was affiliated to any political organization. On one occasion, after Mr. Stembiso explained to one of the traditional leaders why he and I happened to be in his locality, he asked whether we were Inkatha Freedom Party (IFP) or the African National Congress (ANC) members. Mr. Stembiso informed them that we were in the area for research purposes, nothing more and not part of any political organization.

As the area is much politicized and suffered political violence in the past (see Chapter Two), people in the area were suspicious of any outsider. I informed them that this study was a class exercise that I had to accomplish to get my degree. For me as a student and junior researcher, I did not think there was any better way to explain to them that there was no link between the study and politics. However, I felt there was a need to indicate that this kind of research had the potential to bring change in their lives by informing policy makers and society in general. Even when access was granted by the traditional leader, some of the research participants frequently questioned my presence in the area. They wanted to know who I was, what I was doing and why I was in the area.

This kind of discussion often led to the questions I anticipated, which frequently came up with in my fieldwork: What would be the outcome of the research? Who was going to use this study? How would they benefit from it? In many instances, answering those questions was difficult for me for the simple reason that the answers depended on factors over which I had no control. This became evident when I realized that answering those questions would influence my endeavors to establish rapport, relationships and trust that would, in turn, determine access to the group. Therefore, I chose to maintain my first position which was that this research would remain an academic exercise that would be kept in the University library, which would get to be reviewed by other academics and students.

5.8. Documentary Review

The study used both secondary and primary sources of information and data. Secondary sources included books, journals, newspaper reports, obtainable through the library and on-line research. The secondary sources provided both quantitative and qualitative data as well as the theoretical framework. Secondary sources covered critical issues that are necessary to understand drought: its causes; relationship to vulnerability and poverty; and its socio-economic and political impact. It also helped explore the history of drought in South Africa and policy implications. Secondary sources again underpinned the discourse on IKS. It concentrated on IKS in the face of disasters and themes that are relevant for the assessment of IKS in the management of external shocks in this case drought. Secondary sources is important as it provide most recent sources of information on a topic of study that is new or subject to rapid change (Slade, 1997)

Secondary sources were supplemented by official sources of information, such as the South Africa's government disaster management policy documents. Government disaster management policy was important as it provided rich information which was then analyzed and questioned its applicability to drought in Msinga.

5.9. Data Analysis

Data analysis was interpretive by means of thematic analytic methods, which was used to understand patterns of shared understanding amongst participants, and any variability in those patterns. Since this is an interpretive study, it is assumed that meanings and perceptions of the participants are derived from experiences around them, and that reality is subjective rather than objective, which also means that perceptions of experiences of the participants may differ from those of the interviewer. This has important implications for research analysis: thematic content analysis was therefore be used. Although the steps outlined by theorists largely overlap, the five steps outlined by Terre Blanche *et al* (2006) were primarily used for analysis in this study, with some reference to other authors where applicable, and with NVIVO 8 computer software.

When analyzing the transcripts of focus groups, the social context was considered, and whether findings here were transferable from/to other geographic areas. Thematic analysis focuses on searching within transcripts for the emergence of patterns of shared understanding and themes. Additionally, since this was an interpretive study, it is assumed that reality is subjective rather than objective, and that meanings and perceptions of participants are derived from experiences (Ulin *et al*, 2002).

The first step of data analysis was reading and developing an intimate relationship with the data. This involved becoming familiar and immersing oneself in the content to be analyzed. This step began long before textual analysis was undertaken; it commenced right from when interviews/focus groups were planned and participants identified. This means that by the time data analysis began, the researcher already had a preliminary understanding about the phenomena being explored (Terre Blanche *et al*, 2006). Then, immersion again occurred in reading and rereading texts or transcripts of interviews and looking for emerging themes and developing tentative explanations. This step also involved noting the quality of the transcripts, including the portrayed neutrality in asking questions and responding to participants' answers, and the richness of detail in the field notes (Ulin *et al*, 2002). In this step, identification of patterns and recurring themes across focus groups also began.

Secondly, themes were identified. This was done using the same words, style, or terms used by participants themselves. These were then used to establish connections and infer general rules or classes from specific occurrences. Themes emerged from the text, rather than the researcher beginning with predetermined themes and fitting text to these themes. The identification of themes was more than simply summarizing content; it occurs with consideration given to processes, functions, tensions, and contradictions (Terre Blanche *et al*, 2006). Subsequently, the information relevant to this theme was displayed in detail, and then reduced to its essential points. Next, each theme was then examined in an attempt to discover the underlying core meanings and feelings of the participants, and then finally an overall evaluation and interpretation was done, assessing the emergent themes and how they relate to each other (Ulin *et al*, 2002).

The third step in data analysis according to Terre Blanche *et al* (2006) was coding. Data was marked at relevant instances as pertaining to one or more themes – these can be phrases, lines, sentences, or even whole paragraphs. NVIVO 8 was useful for this as data can be efficiently stored, coded, and grouped. These were then easily retrieved as needed.

Fourth, elaboration occurred – as data was broken down into themes and coded, events and discussions no longer appeared linearly. Common topics, some of which were expressed in several ways, were grouped together under a single theme. Elaboration then occurred as each theme was studied and considered in more detail. This allowed for the more subtle nuances to be seen. (Terre Blanche *et al*, 2006).

The final step in data analysis according to Terre Blanche *et al* (2006) was putting together the interpretation of the data, and checking it. This is the written account, seen in subsequent chapters of this thesis, and is presented under the themes used for analysis. This interpretation has been reviewed, and identified weaknesses have been attended to. The researcher's personal role in the entire process has also once again been reviewed and considered.

5.10. Confidentiality

All participants were assured of confidentiality. This was achieved through storage of audio recordings so that only the researcher had access to them, or other members of the larger research team, should they so require. Names and identifying characteristics of participants have been changed in order to protect their identity, and only altered names and characteristics were used in any written reports. Furthermore, participants were requested during the focus group to respect the confidentiality of other members of the focus group, and not divulge any information shared to others.

5.11. Ethical considerations

Permission for access to the community was sought through local traditional authorities (chiefs) with the help of the research assistants who are Msinga community members and graduate students from the University of KwaZulu-Natal. After being briefed about the objectives of the study and its potential benefits for the local community, permission was granted and the chiefs promised co-operation throughout the study. The researcher, through the research assistants, assured participants that their rights were protected by informing them about the objectives of the study and providing assurance that their views would be kept confidential. The researcher acknowledged the history of violence in the area and avoided discussing any sensitive issues related to conflict and politics in the area. Consent forms were handed to respondents who signed them and consented to participate in the interview process. It was stressed at the outset that interviewees could withdraw from the interview, if they wish to do so, and that there was no obligation involved.

5.12. Informed consent

The aims of this study were explained to participants when they were initially approached, and they were invited to participate on a voluntary basis. Participants who chose to participate were asked to sign an informed consent form, and were told that should they feel the need, they were able to withdraw at any time.

5.13. Credibility, conformability and dependability of the findings

A number of steps have been taken to ensure credibility, conformability and dependability of the findings from this research.

5.13.1. Credibility

According to Ulin *et al* (2002), credibility refers to the extent to which the findings in the focus groups are considered to be accurate, sufficiently rich, grounded in and supported by narrative data, and show a logical relationship to each other. Inferences and conclusions drawn from qualitative research should as far as possible accurately reflect the views of the participants (Terre Blanche *et al*, 2006). In this study, this was determined by comparison between focus groups to establish similarities and differences between groups, through discussion and debriefing with other members of the research team, and in keeping with suggestions by Tsai *et al* (2004), through using translators and transcribers who were familiar with both the English and IsiZulu language and culture, and finally, through triangulation with data from questions administered for the overall project.

5.13.2. Conformability

Conformability refers to whether or not findings and conclusions of this study are true to the research objectives, rather than values and biases of the researcher (Terre Blanche *et al*, 2006). This means that although the researcher recognizes and documents his/her own role in the research process, the distinction is maintained between personal values and those of the research participants (Ulin *et al*, 2002). In this study, this was achieved through documentation and reviewing of field notes, process notes, and reviewing the proposal, notes, and personal expectations of the study.

5.13.3. Dependability

Whether or not the findings of qualitative studies are dependable depends on the consistency of the research process, and whether it is done with careful consideration of and adherence to consistency in qualitative research rules and conventions (Ulin *et al*, 2002). Research questions in this study are considered to be

clear and logically connected to research design and purpose. In terms of data collection protocol, there was only one researcher which minimizes the issue of dependability with regards to data collection protocol, although two different translators were used. However, this is not considered as an area which negatively affected the consistency and dependability of findings in this study, as although each translator's style varied as described above, the researcher had already established good rapport with both translators, and in both situations it was still the researcher who primarily facilitated and guided the focus group discussion. Additionally, there are some parallel findings across groups.

5.14. Unexpected occurrences

From the time I decided to conduct the study in Msinga, after reading and hearing of the drought situation in the area, it became apparent that drought is not the only problem in the area, but social conflict is a serious concern. When I started talking to various people of my intention from conduct in the study in the area, many people who have heard war and tribal conflict in the area discouraged me to conduct the study in the area, as it seemed to them to be impossible to have people participate in the study. However, I decided to go ahead. I first conducted a preliminary study to ascertain the situation and explore whether my study was feasible. During the preliminary study it became apparent that conflict is indeed a problem and there is mistrust between communities and they are suspicious of outsiders. To minimize such mistrust I liaised with a member of the community whom later became my research assistant. He introduced me to the communities. To my surprise I found that people were very friendly and welcoming. In two occasions, I was invited by members of the community to share a meal in their houses. However, women were shy to talk to a man and could hardly speak in English. Every question directed to me as researcher by a woman, was first directed to my research assistant or the male heading the household who later passed it to me. Learning from my research assistant, it became apparent that women are not allowed to make conversation with a foreign man.

5.15. Limitations of study and challenges

During the course of this project, I have encountered numerous challenges, rising from changes of supervision and to lack of finances. This project started in 2006. After seven months my supervisor left the University. I had to wait for eight months before being allocated another supervisor. After six months the new supervisor had to leave the University as well. Then I was allocated the third supervisor, with whom I spent three months working together. After this period the third supervisor could not carry on with the supervision. I then spent three months without a supervisor. This was a very painful experience and exercise. Every time I had to change the supervisor, I also had to start from the scratch. In October 2009, I was lucky to have Dr. Kaye, with whom I manage to complete this dissertation. Another challenge was with finance as I am self-sponsored. Conducting research field trips, paying research assistants, and incurring other costs involved in research together with family responsibilities was a difficult exercise. Without the help of the Almighty, this study would have been possible to complete.

Like most primary research, this study has limitations. They include: (a) the relatively short period of time spent in the field; (b) problems associated with the use of research assistants; (c) reluctance on the part of some key informants to participate in the interview, (d) and reluctance of participants to be photographed. According to Devereux and Hoddinott (1993), the longer a researcher stays in the field, the better the quality of data she or he gathers. This is because more time is available to investigate issues and establish rapport with key informants, and there are more opportunities to apply triangulation techniques to cross-check information and make comparisons between the perceptions of groups within the target population.

This study involved four separate trips to Msinga that covered a combined period of 26 days. Considering the tasks involved in the fieldwork, 26 days seems inadequate for a more thorough study. However, efforts were made to reduce the limitations associated with time constraints. For instance, instead of covering all six traditional authority areas of Msinga, two regions were chosen for the study. To facilitate the research process, I appointed three research assistants. Two of the research assistants were graduate Honors' students in social work at the University of

KwaZulu-Natal, while the third research assistant (Mr. Sikumbuso) was a member of the community from Msinga, working as a tour guide and local businessman in Msinga with a Bachelor's degree in Tourism and Culture from the former University of Natal. The graduate assistants' names were Ms. Nomfundo and Mr. Geoffrey. Both Nonfundo and Geoffrey were tasked with organizing, conducting interviews, instant transcription of interviews and translation, while Mr. Sikumbuso was tasked with all logistics, such as preparation of the venue, providing refreshments to participants and in some instances tasked with recording. Ms Nomfundo and Mr. Geoffrey were experienced. They have previously assisted in conducting surveys on water for The Maurice Web Race Relations Institute and for the Department of Social Development's survey on the child social grant. All research assistants were members of Msinga and from the Zulu tribe. The two graduate assistants, in addition to being familiar with the research process, were also familiar with area as was Mr. Sikumbuso.

During the interviews process, Sikumbuso and Nomfundo would alternate. Research assistants were assigned tasks when knowing the local language was essential. The decision to delegate interviewing to research assistants was because of language constraints and the number of interviews necessary to be conducted. I made conscious efforts to reduce the disadvantages associated with the delegation of tasks to research assistants. For instance, research assistants were selected on the basis of:

- a) Their familiarity with the study area and being members of the community;
- b) Previous research experience and ability to assist in the transcription process;
- c) Level of motivation and enthusiasm for the topic of enquiry;
- d) Honesty, communication skills and adaptability to field situations and
- e) Knowledge of the local language and contextual information about localities chosen for interviews.

In order to ensure uniformity in the interviewing process, a training workshop was conducted for the research assistants where ideas and techniques for establishing rapport and collecting data from the target population were discussed. Case studies

of similar interviews were also discussed at the workshop and there was a role-play which gave each research assistant the opportunity to answer questions pertaining to the research objectives. A huge constraint as indicated earlier was with finance, each research assistant was paid R30 (Rand) per hour, and I had to bear accommodation, travel and sustenance expenses. It was not easy to cover all these expenses as unemployed and migrant only earning a living from teaching private French lessons and while attending to other family's needs and expenses.

Furthermore, research was conducted 300 kilometers away from the researcher's residence. The time needed to reach the research destination was long as the researcher relied on public transportation. Villages where interviews took place have no access to the main roads; therefore, the researcher had to travel long hours before reaching the place where the interviews would take place. Another constraint relates to the timing of interviews. The original intention was to conduct interviews during the day. However, it soon became clear that indigenous farmers were usually not accessible during the day, except on Saturday and Sundays. With the help of traditional leaders interviews were conducted on either Saturday or Sunday. Other limitations hinged on failing memories of some respondents and transcription problems. Questions pertaining to the age of respondents were often met with blank faces and raised eyebrows due to illiteracy and failing memories. In these cases, the research assistants encouraged respondents to make estimations based on their knowledge of historical events in the country. In the planning stage, the researcher intended to use video recordings and photographs. However, participants were not willing to have their photographs being published. The reason being was the concern that their photographs could be used for political purposes even though they were assured that this was for academic purposes. This is understandable: the region has been affected by much violence and wars. Mistrust between communities and government institutions are obvious as well as between members of the community themselves. Notwithstanding these limitations, the study uncovered very useful information.

5.16. Conclusion

This study made use of a qualitative research methodology, which allowed for in-depth exploration and understanding of community indigenous knowledge to drought and its management. Semi-structured focus group discussions were utilized as they allowed for the discussion and exploration of group norms, as well as the generation of new ideas. The research provided rich information with regard to IKS, drought and its management (see Chapters Six and Seven). The aims and the objectives of the research were achieved and research questions answered within the constraints of the design. Despite challenges encountered in the process of the research, the study answered the research questions and research objectives have been achieved. One unexpected finding was the impact of conflict, including political, among the communities and how it has affected the exchange of information between them. This is discussed in Chapter Seven. This led to the situation where a common response was difficult. Another finding related to the perception of the Zulu people that they hold strongly to culture, however, IKS appears to be dying out.

CHAPTER SIX

RESULTS AND RESEARCH FINDINGS

6.1. Introduction

The aim of this study is to examine the management of drought through the use of indigenous knowledge systems (IKS) and to establish whether the government's policies are concomitant with local knowledge of drought management in Msinga. The analysis of this study is divided into two chapters: Chapters Six and Seven. Chapter Six is divided into three parts. Part I is the demographic information of participants. It includes the gender of the participants, age, and level of education, participants' membership in organizations, sources of income, employment status, land entitlement, and access to water for irrigation. These variables were important to this study as they help to assess how they facilitate or impede the participants' ability to adjust to and manage the drought. Part II presents the findings from focus groups and the discussion. Part III presents and discusses the findings from key informants, the community leadership. Chapter Seven reviews and discusses the South Africa's government disaster management policy and how this is translated into action in response to drought in Msinga villages.

PART I

6.2. Demographic information

The section provides demographical information of participants. It presents a total sample size of 120 heads of households from both Mabaso and Mbovu. Demographic information provides the age of participants, educational level, membership, sources of income, and employment.

Table 12: Demographic information of participants

Gender	Male N=60		Female N=60	
Community/Village	Freq	Percent	Freq	Percent
Mabaso	30	25	30	25
Mbovu	30	25	30	25
What is your age?				
19-29	18	30.0	21	35
30-39	16	26.7	14	23.3
40-49	12	20.0	7	11.7
50-59	9	15.0	10	16.7
60-69	3	5.0	5	8.3
70-79	1	1.7	2	3.3
80-90	1	1.7	1	1.7
What is your education Level?				
Primary	7	11.7	3	5.0
Secondary	4	6.6	2	3.3
Tertiary	2	3.3	1	1.7
Never	47	78.3	54	90.0
What is your membership in:				
Church	27	46.6	50	89.3
NGOs	1	1.7		0.0
Club	9	15.5	2	3.6
Other	21	36.2	4	7.1
What is/are your Source of Income?				
Pension	4	6.6	1	1.6
Livestock	18	30.0	7	11.7
Field Harvest	24	40.0	31	51.6
Wages	2	3.3	1	1.6
Informal work	4	6.6	2	3.3
Child Support Grant	2	3.3	7	11.7
Relatives	5	6.7	10	16.7
Friends	1	1.6	1	1.6
What is your Employment Status?				
Employed	4	7.5	5	8.6
Unemployed	43	81.1	50	86.2
Self Employed	6	11.3	3	5.2
What is your Land entitlement?				
Owner	40	66.7	2	3.3
Rental	10	16.7	1	1.7
None	10	16.7	57	95
Do you have access to water for Irrigation?				
Yes				
No	60	50	60	50

In total, there were 120 participants in the focus group discussions. The majority of participants were aged between 19-29 years (30% men and 35% women), who were the head of household, followed by those aged between 30-39 years (26.7% men and 23.3% women). Less than 10% of men and 13% of women were aged between 60 and 90 years. With the high rate of modernization, it is assumed that indigenous knowledge is dying and therefore elders, especially those of the ages from 60 to 90, were good sources in providing information on the changing landscape of IKS in the settlement. Elders are still viewed as the custodians of IKS. However, the number of elderly is very limited in the study area. My assumption is that life expectancy is limited in the area given the economic, social problems and wars which occurred in the area in the past.

Education: With regards to education levels, 78.3% of men had never been to school, followed by 11.7% who had some primary education, and those who had some secondary school (6.6), and the least had tertiary education (3.3). Unlike the men, nine out of ten women had never been to school (90%), followed by 5% who had some primary school. Less than 5% of women had some secondary and tertiary education. Overall, both men and women had very limited education. There is reason to believe that many people in Msinga are not exposed to modern forms of education and are still holding onto traditional values and norms.

Analyzing the information from formal and informal discussions, parents prefer to send male children to school rather than females. During group discussions, some participants argued that it is not worthwhile educating a female, because she will leave her family anyway and get married and become part of another family. There is a common belief that educated women will not be able to become good housewives. It was argued that educated women have no sense of family.

These girls who are going to those white schools, they don't behave like other women. You will see them wearing pants; even others do not respect their in-laws" (Formal conversation with members of the community during group discussion, 2009).

Another participant argued that females have to stay home and help their parents care for the households. In support for or against female education, there were

different views; those between 19 and 50 years old seemed to disagree with those who are more than 50 years old. The former argued that females and males should be given equal chances to pursue education, while those of the age above 50 years of age, especially women maintained that girls should remain home and get married and become good wives. Despite these different views, there are a growing number of schools in Msinga and the number of girls attending is increasing. As discussed earlier on in Chapter Two and in the findings, the level of education can influence the way individuals perceive and interpret IKS, in this case, knowledge of drought. There is reason to believe that as more people experience formal forms of education, they tend to perceive and interpret IKS differently and may devalue it (Hoppers, 2002).

When the researcher visited some primary and secondary schools, it was apparent that the number of girls in schools is higher than boys. Through discussions with heads of schools and referring to schools records, it was apparent that the number of female students is growing. The researcher was interested to find out why. One school principal indicated that there are many campaigns in the area encouraging parents to send their girl children to school:

...and even some parents have seen the importance of sending girls to school, because they can see that some of the community members who have sent their girls to school and they are now employed; they can see the result of sending girls to schools" (Formal discussion with the Principal, 2009).

Organisations: In relation to organization membership, fewer men (46.6%) than women (89.3%) belonged to a church organisation, followed by those who do not belong to any organizations (36.2% men and 7.1% women).

Churches in the study area are an important source of social capital. The churches are major sources of support, spiritually and financially during uncertainty such illness, death and during generalized shock, in this case, drought. During group discussion, some participants received the support from church leader when there was drought in the area. It reads:

During the difficult times as result of drought, we only get comfort from the church. I remember sometime ago when there was a serious drought like the one that just passed last year, when there was no water to drink or give to our animals, our pastor told us to come to his house and collect water. He had a big tank around his house

and when we had no water we used to go and fetch water from his house” (Group discussion, 2009).

The role of the church is not only limited to spiritual and financial support, but also plays the role as a unifier of the communities. When there are conflicts in the community, including conflict as result over access to resources as cause of drought, church leaders try to reconcile the conflicts (Formal conversation with members of the community during focus group discussions, 2009).

Respondents indicated that they belong to other organizations – 21% men and 7% women. The researcher further investigated; participants indicated a variety of organizations, most important was a burial organization. In response to death and burial expenses, members of the communities organized themselves and make monthly or quarterly contribution toward such funds (Formal conversation with members of the community during focus group discussions, 2009).

NGO's membership of both men and women is almost nonexistent. Only 1% of men were members of an NGO, while no woman was a member of an NGO. The lack of NGOs in Msinga indicates that there are very few development programmes or external supports. The lack of NGOs in the area also determines high level of unemployment in the area. In many areas where there is no government employment, NGOs play an important role in job creation. In Msinga there are no NGOs and where community members attempted to created community-based organizations, they have no funding to sustain the projects.

Livelihoods: With regards to source of income, the major sources of income and livelihoods strategies among the male respondents were field harvest (30%) and livestock (40%). Other sources of income were varied: wages, child support grants, relatives and friends. For women, the three highly ranked sources of income were field harvest (51.6%), livestock (16.7%), and child support grant (11.7%). Less than 7% of women had the following sources of income: pensions, wages, and informal work.

Household farming activities that were identified include field and livestock farming. For field farming, maize, sweet potatoes, sorghum and vegetables are grown. Livestock involved raising goats and cattle. There is insufficient suitable land for both cultivating and grazing, because of drought condition and ecological conditions. Livestock, as will be seen later in the household asset analysis, is a source of cash in case of emergencies or during very desperate circumstances. As such, instead of exclusively being a subsistence activity, livestock also represents a form of household security. Livestock rising is more of a status symbol than economic and has particular religious and cultural importance such as rituals.

With regards to employment status, eight out of ten men (80%) and women (86.2%) were unemployed. Unemployment is rife in the area. Participants who regarded themselves as unemployed are those who are desperate for work, mostly the youth. The majority of this category cannot find jobs locally and do not have an opportunity to look for any work in the cities because they cannot afford the expenses to stay in towns while looking for jobs. An interesting finding is that although most middle-aged women are unemployed, they prefer to regard themselves as homemakers, not people looking for work. This implies that women take care of the households needs. This could be due to the fact that women have traditionally been seen as reproductive labour and never as work-seekers. Males freely indicated they are unemployed and are desperate for work and are thus willing to work for any employment opportunity (Formal discussion with members of the community during focus group, 2009).

Land: In relation to land entitlement, the results indicate that more men (66.7%) than women (3.3%) own land, compared to those who rent (16.7% of men and 1.7% of women). The majority of women (95%) did not own any land compared to 16.7% of men. Those who claimed to own land are those whose grandparents were living in the same place and whose title of ownership is recognized by the King or traditional leadership. People live in clans when the title is recognized by the King and approved by the head of the clan; the holder is recognized as the owner of the land. Those who claimed to be renting are those who are living on a plot owned by someone who moved away from the area, such as those working in towns.

Examining gender and occupation, it was evident that women do not own land due to customary law, but this does not mean they do not have access to the land. Women can use land for cultivation and other activities but have no decision-making over how land should be used or transferred to someone else. There is reason to believe that limiting women from owning land has disempowering effects, as women are not able to make decision on how land can be utilized. The fact that land is a major asset for all rural communities presumes the importance of women having ownership of this asset.

Water: With regard to access to water for irrigation, 100% men and 100% of women do not have access to water for irrigation. There are water pipes passing through the villages, yet water is not distributed to communities for domestic and irrigation use. The researcher asked why this was so. Municipal officials agreed that water is available, but the lack of financial and skilled human resources posed problems. On the other hand, communities complained of not having access to running water and irrigation, while pipes pass through their villages and supply water to commercial farmers in Dundee.

The fact that water exists in the area and is not distributed to the communities, demonstrates that the government still lacks the capacity to equally distribute resources to communities even in the current democratic government. This was acknowledged by the local government officials in the area, who claimed that service delivery in all forms is still limited and this is due to the lack of resources and skilled human resources. The blame was placed on provincial and central government that failed to provide adequate support to provide development programmes. A ward councilor who asked for anonymity indicated that:

Water in this area is a big problem, which I do not know how to explain to you so you can understand. People in these areas, do not have water, it is almost a desert. But above all, the lack of political support, especially from the provincial and national government is aggravating the situation (Formal discussion with an anonymous government official, 2009).

PART II

6.3. Focus Group Discussions

This part explores and analyses findings from the focus group discussions. The themes of the discussions were:

- Theme one: centered on participants' description of the seriousness of drought in study area.
- Theme two: explored participants' description of losses and the impact of drought on different livelihood systems.
- Theme three: an emphasis on participants' understanding of the causes of drought in study area.
- Theme four: explored participants' indigenous knowledge on drought early-warning indicators.
- Theme five: explored and discusses participants' drought preparedness strategies.
- Theme six: examined participants' drought mitigation and coping strategies.
- Theme seven: examined participants' attitudes and feelings towards the effectiveness of drought management strategies employed.
- Theme eight: examined households' recovery process.
- Theme nine: focused on participants' proposals of drought management policies.

There were 12 focus groups; each group had 10 participants in total, 120 participants in all. There were 6 groups from Mabaso and 6 groups from Mbovu, both of which are part of the Msinga local municipality. Participants were given the opportunity to share views and find common ground. To maintain confidentiality and anonymity, respondents from each group were given an identity number. For example, focus

group for female is identified as (FGF) and focus group for male is identified as (FGM). The two categories were again numbered according to gender. Male focus groups were numbered from (FGM1 to FGM6) and female focus groups were numbered from (FGF7 to FGF12).

6.3.1. Participants' perception on whether drought is a serious problem in Msinga

During all group discussions, all participants agreed that drought is a serious economic and social problem in the study area. The seriousness of drought is measured in terms of crop failure, losses of livestock and seasonal farm employment (Blaikie et al, 1994). The participants' testimonies demonstrated that drought has a long history and its impact was and continues to be severe. According to the participants' testimonies, drought has become a daily experience. Drawing a timeline of the occurrence of drought, 80% of participants indicated that droughts occurred at least after every two-year interval and that rain is becoming more erratic and unpredictable. Everyone in all the focus groups agreed that from 1999-2001, 2003-2004, 2006-2007, droughts were the worst in living memory. The elderly in the village recalled their elders discussing a comparable drought from 1800 onwards which led to starvation and mass migration. During the current and previous droughts, there was an acute shortage of food. Grazing land, water and crops dried up. People were starving as result and there were large migrations to other villages and urban areas in search of food. The following quotation from an 80 year old man showed that drought has been in Msinga for long time and its impact is severe:

Drought is not a new thing in this area. We have been experiencing drought for many years. As you can see, I'm now about 80 years. Even my brother when he was still alive, he used to tell me that they were experiencing severe drought. It happened that people were dying as result. Cows and goats you could not talk of them, they were dying like flies" (FG5M, 2009).

According to the participants' testimonies, the impact of drought is not limited to livestock, crops and water losses, but resulted in other social ills such as conflict over scarce resources. Conflict over resource usage was believed to be the source of all the tribal wars fought in Msinga in the early 1980s which took the lives of many innocent men and women. There were major conflicts over grazing rights, ending in physical violence. In one case:

When there is a severe drought people do what they can to keep their livestock alive. Sometime ago, cows went to someone's field, there was a fight between the cow owner and the field owner. The guilty cows were stabbed by the owner of the field, which ended up into a generalized conflict between members of the two clans (FG6M, 2009).

The following statement also supports the same notion of conflict as a result of drought:

If you have heard of wars that were fought here in the eighties, I do not believe that it was a political one between the IFP and ANC supporters. I think it was a result of the competition for scarce resources between people from different clans in Msinga. In seventies and eighties, there was a generalized drought. People were starving as result. I think that political conflict was just a trigger" (FG4M, 2009).

The impact of drought in Msinga can not only be justified by historical testimonies of elders, but the daily experience of people. Daily conditions of these communities demonstrate a high level of vulnerability which could undermine their ability to resist external shocks, in this case, drought. The seriousness of drought in Msinga and linking it to a form of livelihood that people have to undertake, the evidences show that the effects of drought in themselves are the result of the existing level of poverty and the lack of external support (Wisner, 2004). During group discussions, participants argued that drought is aggravated by the existing high level of poverty in the area. This is evidenced by the following quotes.

Drought has become part of our lives. Every year we experience drought. We never get rain when we are supposed to plough, every year we plough very late when the planting season is almost over. For those who have livestock, they are struggling because of drought. In this area, people are very poor; they cannot even buy food for themselves when there is drought. If people should have the money to buy food in shops like that in Pomoroy, people cannot starve. I used to work for white men in a farm in Dundee, even when there is drought, they still have food and their animals do not get thin as ours" (FGF7, 2009).

Although all participants seemed to share the same view on the impacts of drought in Msinga, women were more concerned about the household burden brought along with drought. As in most rural areas in South Africa, women are responsible for household's diet (Von Kotze, 1999). During group discussions, women complained of having to travel long distances to fetch water and being overwhelmed by other household' responsibilities. One said:

Every year, we experience drought, where we run short of food and water. Wood is another problem in this area. When everything runs out, we women as responsible for our family, have to travel long distance to fetch water and when there is no food in the house, have to go to friends and relatives to get food, so we can feed our family (FG8F, 2009).

There is reason to believe that the level of drought in Msinga might have brought some form of family social disintegration. Analyzing statements from participants, the migration of men into urban areas, resulted in some families' separation. However, such assumptions were difficult to substantiate whether this is linked to drought or other factors. Participants argued that most men, who go to urban areas in search of work, do not return home and as a result, the family splits.

6.3.2. Impact of Drought on Different Livelihood Systems in Msinga

One of the major impacts of drought is that peasant cultivators suffer from a loss of and a decrease in crop production and livestock (Sen, 1981): this has a serious impact on the livelihoods of poor households. Sen (1981), examining the relationship between drought and the loss of entitlement, argued that when drought strikes it leads to a situation where a poor household will lose its assets and become more vulnerable to drought as it has nothing to fall back on. Analyzing drought in Bangladesh, Sen (1981) pointed to a linear relationship between the collapse of entitlements and drought. Drought reduces the overall amount of food, and adversely affects the success of different groups of people in fulfilling their entitlements. For instance, the market prices of food normally rise and there is a mismatch between the availability of food and the ability of the household to purchase such food (Sen, 1997:76-88).

In the study area, examining the impact of drought on different livelihoods systems of households, it was apparent that droughts have serious consequences on the livelihoods of these communities. The losses to drought are mainly directed to crop failure, death of livestock, and loss of employment for those dependent on seasonal farm employment in commercial farms. Four main points arose from the group discussions in terms of livelihoods:

- 1) Drought caused crop losses in Msinga:** Agriculture forms a major source of income and livelihoods of the people of Msinga. During the focus group

discussions, it was evident that all participants have suffered a loss of crop as a result of drought. Examining crop losses due to drought, all participants in the focus group discussions agreed that during the last drought that occurred between 2004 and 2007 many families were left destitute and starving. All participants reported to have lost 70 percent of crop production and had to rely on small donations from friends, churches and from relatives. The following statement demonstrates the extent of drought and crop losses:

In 2003 and 2004, there was serious drought in this area. There was nothing to grow, even sweet potatoes and sorghum which we grow sometimes when it is dry, these could not be grown as well. It was too dry. In my field I used to harvest at last five baskets of maize and potatoes. That time could not get even half of a basket. Drought that we experienced in 2004 was very severe compare to the ones we experienced in 2001 and the nineties (FGF9, 2009).

All participants agreed that the failure of crops, causing generalized starvation, led to mass migration of men to urban areas in search of employment. It was evident from participants that crop failure did not only result in losses of food, but the loss of major sources of income. During group discussions, all participants indicated that they could not afford to buy basic items such as soap, salt and sugar as they had no crops to sell or exchange for these basic items. A form of bartering existed in Msinga: market transactions are done in a form of exchange of goods and services. For instance, if one has crops such as maize, the farmer can exchange these crops for other items such as salt, soap and cloths, or someone may sell his/her labour in exchange for these basic items. During group discussions, participants indicated that this form of market is always affected when there is severe drought.

The following statement indicates how drought affected the market systems in Msinga.

Here people do not have money, when you have crops, such as maize or sorghum, there are local dealers who exchange these with things like soap, salt, cloths, books for children and when people cannot produce enough as result of drought, then can't get all what they need. Sometimes if you do not have soap or sugar, you just go to help someone, and then he can give you a kilo of sugar (FG7F, 2009).

The loss and failure of crop is not only limited to food insecurity and the erosion of market systems, but also affects the entertainment sector. In the study area, after field work, people spend their time drinking in *sheebeens*. There are many *sheebeens* around the villages where traditional beer is sold. This beer is made from maize and sorghum. During group discussions, participants indicated that when there is a severe drought, these grains become unavailable and as the result, the beer becomes unavailable as well. The loss of crop resulting in traditional beer unavailability also has an economic impact to brewers especially women whose additional source of income to agriculture is from traditional beer. During group discussions, some participants complained about having lost their income, as there were not enough crops to produce beer which could be sold. Traditional beer is consumed by the majority of the population and plays a very important role during special events, such as weddings, rituals and other social gatherings. The effect of drought does not only affect communities in terms of consumption, but other cultural activities are affected as well. A 45 year-old woman brewer asserts that:

I get money to buy soap to wash my clothes from the beer I sell. But when there is drought, you cannot get maize or sorghum to make beer. This means no maize no soap or anything that I need (FGF10, 2009).

When people do not have traditional beer, it is difficult for us to perform some of the rituals, we have to seek maize from other places, and so we can make beer and invite people. Sometimes it happens that when there is drought and people do not have enough maize to eat and make beer, it becomes very difficult (FGM7, 2009).

2) Drought caused loss of seasonal farm employment: Due to the high level of unemployment, some participants diversify their source of income by seeking seasonal employment in commercial farms. Examining the effect of drought and farm employment, 75 participants indicated to have sought, at least once, seasonal employment in nearby commercial farms, such as in Dundee. Nonetheless, the implications of crop failure in commercial farms in Msinga are considerable. In this locality, other than food insecurity, there have been substantial job losses during drought. For instance, during group discussions, 25 participants claimed being laid off from farm jobs as a result of drought in commercial farms. This is a significant number considering the number of

participants, which represent a small portion of whole population of Msinga of 170,000. A 34 year old woman asserted:

I was told together with others to wait in September, because the season was very bad. I realized that it looked I might wait forever, because drought continued throughout the year. I waited for the following year, but the situation was almost the same and I was not called back to work. I went back to the farm owner and was told that there is no job as the situation has not improved much (FGF8, 2009).

The decline in agricultural output not only leads to food insecurity and job losses, but also results in the decline of employment opportunities, often immediately after a disaster. This occurs because of labourers becoming involuntarily unemployed. Sen (1981, p. 38) defines this as *trade entitlement failure* since people or labourers cannot continue selling their labour power as a means of survival. As result, "owing to insufficiency of demand for their labour, their livelihood is disrupted".

3) Drought caused losses of livestock: The loss of livestock implies loss of draught animals and in some instances, a loss of an asset to generate income. Among participants, the majority own or have a relative who own livestock. Those who have livestock have indicated that they do not regard them as income-generating, but rather as a source of security during major shocks, such as a death in the family or when a child goes to a tertiary institution. When asked if they lost livestock to drought, all participants agreed that they have lost livestock or one of their relatives has lost one or more head of cattle. Some households have suffered loss of livestock and a loss of cattle was regarded as the greatest loss and central in perpetuating the poverty of the household. An old man asserted:

It was a cow that I raised for 6 years that died; it grew in my kraal for all these years. My daughter went to the teacher's college with the money I got from selling the calves the cow gave to me. The other cows in the kraal are lazy. They do not give me much because I no longer have a good hand with them It was a great loss because we could not eat the meat during those droughts and because she died no one could attend to her. The other cow and the calf dropped dead two months after the drought stopped. It was said that they died because there was not grass to feed them, and there were lot of diseases as result of drought (FGM2, 2009).

4) Drought caused emotional responses: While the impact of drought is understood as having caused damage to sources of livelihoods and the environment, it also has an emotional impact on those who are affected by such natural phenomenon. This was revealed during the focus group discussions throughout this study. Some of participants who experienced losses as a result of drought related emotions fresh in their memories. For example, during a focus group discussion, an old woman remembered how cows were dying like flies and people became helpless. She said:

My children, it was very bad around here. Sometimes ago, the entire Cqaka, was affected by this drought. Cows were dying like flies. There was no water, no help from anywhere and at that time the war was just end in this village and other neighbouring villages were in the same situation. You could not get help anywhere, people were dying as well. I remember my cousin has lost two children, because they were very sick and became weak as result of the famine (FGF6, 2009)

Many stories of helplessness are found from many testimonies from different participants during focus groups and individual interviews.

5) Drought caused losses of other sources of income: Other than agricultural assets and employment, both men and women had lost their sources of income. During group discussions, it emerged that some participants sell thatch grass during the winter seasons. Thatch grass is used for the roofing of huts in villages, but is also gathered for sale for the local people and has become a survival strategy for some members of the communities. As a result of the drought, there is no grass grown. The implication is that the community cannot gather grass for thatching and for sale. The result has therefore been a loss of income to those people for whom thatching is a livelihood and survival strategy. This provides a further indication of the effects that the droughts have had and have on reducing the income of the people in the study area. One respondent said:

My job is selling these grasses to people. I know how to make roof and cover the house with the grass. I do this for the people in our village and some times, people from other villages come to see me to do it for them. When there is drought, I cannot get the grass as result can't get the money to feed my family (FGM1, 2009).

6.3.3: Participants' knowledge of the causes of drought

Participants in this study had different views of what causes drought. During group discussions, it was apparent that there are a number of factors that influence participants' understanding and interpretation of the causes of drought. Among these factors include: age; level of education; and gender. Participants aged between 19-40 and those participants who have some basic formal education believed that the causes of drought among others are cutting down trees, over-grazing and ancestors' anger due to human misbehavior. Those of the age above 50 years, both men and women, argued that drought is a result of ancestors' anger. The latter believe that people of Msinga misbehaved by abandoning their culture and adopting foreign culture and therefore ancestors became angry and caused drought in the area.

Our ancestors are very angry. People no longer behave. People are killing each other. People are adopting other cultures. Now, you will see that many of our people are adopting white men's religion and forget theirs. It is very sad. Now ancestors are getting angry. That why you see this drought. People are dying of AIDS, this is a punishment from ancestors (FGM2, 2009).

The following points were made with respect to the causes of drought:

- 1) **Cutting down trees can cause drought:** Those participants who advocated that cutting down trees can cause drought drew a historical timeline of dryness in Msinga. They indicated that there were some areas that had forests and there were good land for grazing animals, but since trees were cut down, the areas had become dry. The arguments to show that drought in Msinga is caused by cutting down trees was supported by evidence. In one group discussion, a primary school teacher indicated that:

I was born here and now I'm 47 year old. I went to school in Durban, finished my school and came back to work here. There were lots of trees in this area during that time. I do not deny that there was drought, but when people started cutting trees down the level of dryness increased as well (FGM2, 2009).

As indicated in Chapter Two, there is a high reliance on wood for fuel and for other domestic uses in Msinga. Arguing from this perspective, there is a reason to believe that over-exploitation of forests and trees have been influential in causing drought.

2) **Ancestors can cause drought:** As discussed earlier on, ancestors play a very critical role in everyday life of rural men and women in KwaZulu-Natal and South Africa as whole. There is a common belief that disobedience to ancestors may result in catastrophic events such as diseases, death and natural disasters. During group discussions, it was evident that most participants supported the notion that drought prevailing in Msinga is the result of human misbehavior toward the environment and disrespect to ancestors. As indicated in Chapter Two, ancestors are believed to be intermediaries between the living and the dead and ancestors are able to intervene on behalf of the living and when the living fail to obey ancestors' instructions of what God is expecting from, then they will have to suffer the consequences. The following statements demonstrate how human misbehavior and disrespect to ancestors caused drought in the area.

God is punishing us. Things are no longer the way used to be. People no longer adhere to their culture. Women do their own things. Men no longer respect their elders. We no longer pay respect to our ancestors. If we do not respect our ancestors, then we do not have expected anything less than these entire things we see, including drought (FGM5, 2009).

We have become too selfish to the point where we no longer give back to nature. In our days, you could not harvest everything from the field. You have to share with the birds, so they can benefit from your hard work and ancestors can be happy. Now people just harvest everything and now ancestors get angry because of our selfish behavior (FGM9, 2009).

All disasters that people can experience, is the result of ancestors' anger, because people do not respect their culture or have misbehaved. When people misbehave, then ancestors get angry and they can do anything they like to punish. You will see, every time people misbehave, there will be lot of problems, such as diseases. In our society, people no longer respect their culture and have chosen a white man's culture that is why you see there are many problems (FGF7, 2009).

At the end of the discussion all participants expressed a need to protect the environment from deteriorating. When the researcher enquired what can be done to prevent the environment from deteriorating, participants suggested:

- To have more land allocated to them, so people can have enough land for grazing and cultivating.
- Limiting people from cutting down trees was another alternative provided by participants.

- Most importantly, the respect to ancestors has been highlighted as the major causes of all social and economic ills people are facing in the area. Therefore participants encouraged everyone in the group to adhere to cultural values.
- The need for government to intervene in providing water and alternative sources of energy was highlighted during group discussions.

6.3.4. Early warning indicators of drought

The evidence emanating from this study demonstrated that communities in Msinga have vast knowledge on drought prediction and early warning. Most dominant are: The observation of animal behavior, ancestors' revelations, migration of birds, and movement of winds and vegetation. Each point is presented below:

- 1) **Behavior of animals can indicate drought occurrence:** During group discussions, the majority of participants agreed that the occurrence of drought can be determined by the behavior of animals. Participants indicated that there are many signs from animals that can determine that drought is about to occur. The following quotes support some of these beliefs:

Cattle will lose weight as grass is dying. There will be foreign animals migrating to the areas and some indigenous animals will migrate elsewhere. You will always see goats and cows walking around houses and sometimes coming inside the houses and you will see some becoming very weak and can't go far to look for grass. When we observe all these signs, then we will know that drought is close to us (FG1, 2009).

The behavior of animal such as wild dogs and cries of birds can determine whether there will be a rainy or dry year. Discussing how wild dogs can indicate the occurrence of drought, participants argued that when there are many wild dogs in the area and when they come around the houses, then it will be known that such particular year will be a severe drought. There is a common belief that wild dogs do not just come around the houses without any reason. The belief is that when wild dogs come around the houses it means the food in the wild is exhausted.

It is rare to see a wild dog around the houses searching for food. When you see a wild dog coming around the houses looking for food, then know that will be a bad year. You will hear them crying around the houses and fighting with domestic dogs for food (FGM4, 2009).

- 2) **Ancestors can reveal when drought will occur:** The role of ancestors is recognized in all aspects of life of rural men and women in the study area. It is commonly believed that nothing can happen to the community or individual without the ancestors' consent and intervention. The role of ancestors in predicting drought is crucial in these communities. During group discussions, participants agreed that when drought is about to occur, ancestors will tell through *IziNyanga* (diviners) or through an elder person. They indicated that the person who receives the message, must inform members of the community, so they can prepare for disaster.

Ancestors will always tell when anything bad is about to happen. They care for us. Sometimes they tell people what needs to be done in order to avoid such things from happening. If people do respect and honor what ancestors tell them to do, then nothing will happen, and if it happens, it cannot be very serious as it should (FGM4, 2009).

- 3) **Vegetation can indicate when drought will occur:** Another early drought occurrence indicator is the vegetation. All participants in the group discussions indicated that there are many signs from the vegetation that can demonstrate whether there will be a rainy or dry season. Among the indications discussed by participants are that in June or July, there are indigenous trees which produce leaves and flowers. It is commonly believed that when these trees do not produce leaves and flowers at expected time, then people will be aware that in such a particular year there will be severe drought.

Trees and grass, can tell you that this year, there will be rain or drought. When drought is about to happen, you will see trees, not growing any leaves, and will see that that the tree looks as dry. These trees normally bear leaves and flowers in June or July, and in August or later September, we have the rain. When this does not happen, people start getting ready for dry year (FGF12, 2009).

- 4) **Migration of birds is an indication of drought occurrence:** The immigration and migration of birds can determine whether there will be drought or rain. According to participants, in a year where drought is expected, some of indigenous birds will migrate to other areas, while foreign birds immigrate into the area. The migration and immigration of birds is not the only indicator of drought, but the cries of birds can also indicate drought occurrence.

Usually, we know that there will be drought or rain from observing and listening to birds. Sometimes, you will see all the birds that we usually see here, are no longer in the area. You will see other birds which are not of this area. Sometimes, birds usually sing when the rain is about to come, when we observe that these birds have not sung up to August, then will expect serious drought in that year (FG9F, 2009).

5) Movement of winds indicate drought occurrence: The movement of wind has also been indicated by participants as early warning indicators of drought. During group discussions the researcher asked how the movement of winds can determine drought occurrence. Participants in this category argued that:

When drought conditions are about to happen, you will always see the wind changing direction. Sometimes it is windy for a long period of time. For example it can be windy for three or six days successively, and when that happens, then we will know that drought is about to occur (FG1, 2009).

6.3.5. Drought preparedness/prevention strategies

Numerous studies demonstrate that individuals or households devise a number of strategies to prevent their livelihoods from being affected by external shocks. The same literature indicates that individuals or households engage in multiple activities and promote flexibility to counter risk and uncertainty (Mwaura, 2008 and Chen, 1991). Here preparedness or prevention strategies are measures undertaken in order to prevent the disaster from happening or, in case it happens, its impact can be minimized.

Examining households' drought prevention strategies in Msinga, it can be concluded that there are four major drought preventative strategies: 1) praying to ancestors; 2) growing drought resistant crops; 3) migration of men and young women to urban area in search for work and 4) grazing arrangement with distant communities. Analyzing the effectiveness of these strategies, they presented some limitations in preventing drought from affecting livelihoods systems.

1) Praying to ancestors can prevent drought: The role of ancestors in preventing drought in Msinga is performed through rituals which connect the living and the dead and seek protection from ancestors. It was argued by the participants that when drought is predicted, a number of ritual ceremonies are held to seek protection from ancestors. However, during group discussions some participants,

especially elders, were concerned about the behavior of some members of the community abandoning their culture and adopting what they considered to be foreign ways and attitudes. They believed that the lack of respect and adherence to culture angered ancestors to the point where ancestors allowed anything to happen in the community. The following quote justified such belief:

When IZinyanga⁸ or other signs show that there will be a severe drought in a year, we have to go to the mountain and pray to our ancestors so they can protect us from drought. Drought are happening because some people in the villages are not paying tribute to our ancestors and sometimes do wrong things. When our ancestors get angry, they send us things like drought. We go up to the mountain early in the morning or afternoon and people have to stay there and pray to our ancestors, until the rain comes or our ancestors tell us to go back home (FGM4, 2009).

- 2) **Growing drought-resistant crops can prevent drought:** Growing drought-resistant crops and plants is another common prevention strategy that was noted throughout all the group discussions. This form of strategy is shared by both women and men. There are numerous indigenous crops and roots that have been introduced into agriculture systems in Msinga. These crops and plants are believed to be more resistant to drought. These crops include sorghum, a variety of maize, sweet potatoes and water melon. During group discussion, participants indicated that some of these crops have been introduced in early years, while others have been there for a long time.

Every year we are experiencing crop failure as result of the lack of rain. Some species of crops which used to be grown are no longer grown as they cannot resist to the dry conditions. As you can see, there is no crop that can be grown in a very dry place like this. If we should have water, it could have helped, but we do not have water to replace the rain that we do not have, if the government could bring us some water, that would help a lot, as we can grow crops even when there is no rain. The only crops that can resist in dry conditions are sorghum and sweet potatoes, but people here do not like potatoes, you cannot eat potatoes every day (FGM6, 2009).

Despite drought-resistant crops and roots playing an important role during drought, they present some limitations. One of the limitations is that the production is low; second it is difficult to store them for a long period. For instance, participants

⁸ In IsiZulu or the Zulu language, "Izinyanga" are the experts who predict unexpected events, such as natural catastrophes (i.e, droughts, floods, diseases) and who also can predict good or bad season for a particular period. In the case of death and other misfortune happening in ones' life, Izinyanga are consulted to determine the causes.

indicated that sweet potatoes cannot be kept for a long time. They require immediate consumption after harvest. The researchers, examining the effectiveness of drought-resistant crops in protecting communities from starvation, noted that all participants argued that it brings very little relief and does not have much impact. This is evidenced in a participant's (FG9F) statement:

Yes, we grow sweet potatoes, sorghum, but the problem is that, people cannot live on eating sweet potatoes for two or three months or even five months till the rain comes or not. If we have sweet potatoes, will it be possible to eat only potatoes without anything else? Sometimes you can't even get these potatoes (Participant FG9F, 2009).

3) Migration can prevent drought from affecting livelihoods: The migration of men and young girls to urban areas in search of work is another strategy adopted by a number of households. Analyzing the information from group discussions, it was apparent that this strategy is not shared by all members of the community. It may be that such strategy is adopted by particular households. Migration to urban areas can be understood as one response to a wider response to the poverty prevailing in Msinga. The level of unemployment, lack of basic services and lack of external support might have an influence on migration of young men and women. Most of the male migrants work in mines, mainly in Johannesburg, while women do domestic work in towns such as in Durban and surrounding towns. Migration from Msinga as elsewhere in South Africa has a long history. It can be traced back the discovery of mines during colonialism. Both domestic workers and mine workers have established strong social networks in cities. These networks help newcomers to find work by providing information as well as providing shelters when necessary (Formal discussion with some member of Msinga who work in Urban areas, 2009).

3) Grazing land arrangements can ease the effect of drought: Grazing land with a distant community can ease the effect of drought especially to those who have cattle. However, this strategy is specific to men. Most women who participated in the group discussions were not aware of how grazing arrangements can prevent drought. Men indicated that there are grazing arrangements between traditional authorities in different traditional areas. When one area is affected, people can move and graze in the area which is not affected. Grazing arrangements presented some serious challenges. These challenges range from conflicts

between those in search of grazing pastures and those living in the area. Another challenge is the distance that needs to be travelled and duration of stay while grazing. It was indicated by participants that those who have livestock also have other household responsibilities and when they are absent from home it creates more problems for the family left behind. Women asserted that when men are absent from home, it is difficult for women to negotiate loans and deal with other household problems. Taking care of the children while the man is away is a challenge to most of the women in the study. The absence of men adds more responsibilities to women who are already burdened with great responsibility in caring for the household. The following quotes demonstrate challenges related to grazing with distant communities:

Grazing arrangements with other clans where there is no drought, helps keep our livestock alive, but the problem is that most of us do not have cows, only goats. It is difficult to travel two days or one week with goats in search of grass, if you are there what can you eat? You need to have enough food, now where can you get food to eat alone while you leave the family without food? (FG5M, 2009).

We have problems going grazing in other areas. Sometimes you will find that people in the area are not happy with our presence, because they feel that we will exhaust all available grass. Sometimes this leads to conflict between those coming in the area and the owners of the land (FG4M, 2009).

The majority of participants agreed that prevention strategies do little to prevent drought.

Yes, people migrate with the cattle to other areas, people grow some crops, but all these contribute very little to prevent people from starving. Even those people who go somewhere else with their cattle, they do not return with all of them, some die. I know one neighbour who went Nqutu, all his cows died, he only returned with skins for drums. People these days prefer not to go, they just stay and wait (FG2M, 2009)

When the researcher asked what participants think could be done to prevent drought from affecting their livelihoods, all participants stated the importance of water. They believed that if water is available to all households, it can be used for irrigating and for livestock. The following statement was recorded:

Drought is not like a fire, no one knows where it comes from. If it was like a fire, everyone in the village would stand and we can put the fire down. But drought is something different. Maybe, if we should have water to irrigate like what I see in Dundee where there are white men, I think, we can reduce the impact of drought.

Even those white people are affected by drought, even they that have those irrigation systems, but sometimes they grow crops and vegetable while we are suffering from drought and cannot get anything to eat. Only God and our ancestors can help us bring down this disaster (FGF7, 2009).

6.3.6 Household's drought coping Strategies/mitigation strategies

In the face of risks and uncertainties, household often develop several mechanisms of dealing with shocks and stress. Chapter Five has identified various household indigenous coping strategies employed in times of crisis. Examining household's drought coping strategies in Msinga, several strategies were identified. One of the strategies and which continues to dominate is the prayer to ancestors followed by cutting down food intake; diversify income, borrowing and dependence on relatives.

- 1) **Pray to ancestors can mitigate drought effects:** The participants consider that role of ancestors is crucial in prediction, prevention and mitigating drought. During the group discussions, the participants indicated that praying to ancestors can mitigate the effect of drought. It was argued that when droughts are severe, old women organize themselves and go to seek protection from ancestors on the mountains. Researcher probed how such prayer is performed. Respondent FGF10, argued that:

We choose some old women to go pray to God and ask for rain. When we come closer to the mountain, there is one tree from which we take some of leaves and wrap them on our hips and neck, then we go up to pray to God. Then God will tell us to go down to the river, and wash ourselves. When we arrive there, just after washing, the rain starts with us. Ah...ah...But these days people are not interested in these things, but sometimes we do, but not much as used to be that in that time (FGF10, 2009).

Once arriving home, ceremonies acknowledging the role of ancestors to provide rain must be held. Slaughtering of cows must take place. When the researcher enquired from participant FGF10 why and what are the reasons for people not being interested to go the mountains and pray to ancestors to bring rain, she indicated that:

Now, people are questioning everything. During our times, you could not question anything. If the elders tell you that if you do this, this will happen, you can't do that. Sometimes, they used to tell young boys that if they urinate in the river, they will be female. It worked and that prevented people from doing wrong things. Now people are questioning everything. I think maybe because people think that ancestors are no longer listening to us (FG10, 2009).

- 2) **Cutting down food intake reduces the effects of drought:** Cutting down food intake is one major coping strategy adopted by a number of households in Msinga. All focus groups indicated they have gone one or more days without eating food because of the lack of food. Some participants indicated that, during a good season, they take two meals per day; and when there is drought, they get one meal per day. In some instances, they do not get a full meal. Cutting down on food intake presented a number of problems. Some participants complained of getting ill and becoming weak due to insufficient food intake.

Cutting down food intake has gender implications. For instance, female participants argued that when there is food shortage, the available food is allocated to children and husbands. Food allocation is the responsibility of women, and during food shortage as a result of drought, this causes problems to women's household management strategies.

When there is a shortage of food, you do not know to whom to give food and whom to leave. First you think of the children, and then you have to think of their father as well. You cannot really know what to do (FG12F, 2009).

- 3) **Diversifying income reduces the impact of drought:** During times of uncertainty communities in the study area engage in a number of activities. Evidences from group discussions revealed that there are very few opportunities in the areas, however, during drought, communities engage in small businesses such selling fat-cakes and other small items. During group discussions, it emerged that many participants were engaged in the business of selling basic items, such sugar, soaps, chips, sweet etc. These have been identified by all participants as an alternative to escape the effects of drought. However, this strategy presents many weaknesses and limitations. One is that most of households have no source of income to start such small business. For instance, one old woman claimed that she has never received more than R100 in the last 10 years. Another problem is that there are no formal markets where these items can be sold. Those engaged in this form of diversification have to market their product door-to-door and in some instances sell to passers-by. This proved to be a difficult exercise for many of participants.

Brewing traditional beer is another diversification strategy. Despite maize and sorghum becoming rare during drought, some women manage to get some maize and sorghum from distant communities. Beer is made and sold, helping women supplement the household's income. Brewing beer has some challenges: when there is drought, people prefer to spend the money to buy food rather than beer. This affects the beer market as there is no money. In some instances, when people run out of money to buy traditional beer, in this instance it is sold in exchange of a service, such as helping the brewer cultivate or any other services he/she may require. Some of participants argued that due to these challenges linked to diversification of income, they end up staying home and waiting until the drought is over. In one instance, an old woman indicated that when there was a severe drought in 2004, she bought some food items, but due to storage problems, the items were destroyed. There were other households that were engaged in selling meat and food along the way to travellers. They said:

When we have nothing else to fall back on, we just do whatever gives us some money, and then we go to buy food from Pomoroy. When there is no rain, everyone get involved in business. But is very difficult, people just try (FGM1, 2009).

- 4) **Borrowing can reduce the impact of drought:** Borrowing money to reduce the effects of drought is another strategy adopted by some households in the study area. Men are more involved in borrowing money while women borrow food from relatives or friends. Men are believed to be better than women in negotiating money. However, women are also good in negotiating food and other household items such as salt or soap from neighbours or friends. Among women there is a spirit of sharing. When one woman has no items such as salt or soap, she can go to her neighbour and get these items. For men, during group discussions, participants said that when drought occurs and when there are no other options, borrowing money becomes one of the options. There are no formal lending agencies such as banks, but communities have established informal lending structures called "*Mashonisani*". Borrowing systems present a number of problems. One is that when a borrower is not able to pay back the money, he/she may be required to work for the lender in return. However, participants complained about some lenders who take advantage of the vulnerable situation

of the communities by hiking interest rates. Other participants complained about the behavior of some lenders when it comes to demanding their money back.

here we are poor and we do not have money to meet our needs, for those of us who do not have money, when we get money from them and you do not have the means to pay back, then they come hard on you and they will demand their money by force, now things are changing, it was not like this before, during our times people were very supportive (FGM3, 2009).

- 5) **Social support can reduce drought effects:** Support from relatives has a role to play for many women who participated in the discussions. During focus group discussions, it was evident that when women have relatives, such as working husbands in urban areas and other relatives, they send money in the form of remittances. Support from relatives presented some limitations. One is the money is not received when is it most needed. Participants, who have working relatives in cities, argued that money is received once a month or after two months, due to transaction problems or the availability of money. They said that working relatives sometimes do not get money to send home as a result of low wages and increases in the cost of living in urban areas. The following statement demonstrates challenges related to relatives dependence:

I have no other source of income. I only rely on my daughter who is working in Durban as a domestic worker. Sometimes, she doesn't get the money on time, because her boss did not pay her. If it happens, then we have to struggle and find other ways. Sometimes we borrow food stuff from a local shop dealer, when my daughter send us the money, then we pay the shop dealer (FGF7, 2009).

6.3.7: Feelings about drought management strategies used

As demonstrated in previous discussions, members of Msinga have a range of knowledge and strategies to predict, prevent, mitigate and cope with droughts. However, in examining the effectiveness of these strategies and participants' feelings about drought management strategies, there were mixed responses. The majority of participants, both men and women, indicated that were not satisfied with drought management strategies. They believed that strategies employed brought some form of relief, but due to the lack of assets, unemployment and external support they cannot cope with drought effects. When droughts hit, most households do not have assets which can be sold and purchase food. The level of employment,

lack of water available for irrigation adds to the already vulnerable conditions. The breakdown of social ties, combined with a lack of government assistance, limits a household's ability to effectively adjust and cope with drought. The breakdown of social ties came up repeatedly during group discussion. Elderly participants, aged 50-80 indicated droughts in the area have been there for many years, but since people were united and "shared what was available", this reduced the severity of the impact of drought. Participant FGM, 1, 2009, indicated that when people were starving in one area, they could travel and get help from their neighbours or friends. But today, this no longer exists.

6.3.8: Capacity to recover

Having looked at coping strategies during and after the drought, it is evident that household systems are not stable but change over time as they respond to a particular crisis and are therefore not equally vulnerable to the same risk (Davies, 1996; Nchabeleng; 1999; and Oelofse and Dodson, 1997). A greater percentage of participants lack the capacity to withstand shocks. They are unable to recover from drought given their income levels, the lack of social and external support. They could thus be regarded as a 'low resilient household' since they have been unable to resist the effects of the disaster. These low resilient households are faced with the after-effects of drought that restrain them from recovery. In Davies's (1996) words, "their capacity to recover has been eroded", and they cannot even meet their basic needs. Their main concern is survival and they will therefore make every effort to earn a living rather than being too worried about the future. In this study, very few participants displayed a capacity to recover or gave an indication that they will recover in the future. For example, one man indicated that it has taken him more than ten years to own a cow, thus implying that it might take him more or less the same number of years to recover.

6.3.9. Proposals on drought management

All participants were unaware of any government plan on drought management or relief in the area. However, all participants agreed that drought is a serious problem in Msinga and suggested ways in which drought could be managed. As indicated in the discussions above, the lack of water is a serious problem in Msinga, lack of employment and government support to local farmers is problematic. The

participants suggested that drought can be prevented and mitigated through the establishment of water infrastructure for irrigation and domestic use. They also indicated that employment can reduce drought impact, as people will be able to buy food from local shops even when there is drought. Another concern was that government officials were not accountable to the communities. Participants therefore asked the government officials and communities to work hand-in-hand so they can effectively solve the problem of drought together.

Part III

6.4. Individual Interviews with Community Leaders

Disasters also have an effect on community leadership since communities tend to band together in times of crisis to overcome their common hardships. Understanding the role of community leadership in drought management is important, because it gives an understanding of the challenges and strategies employed by community leadership to alleviate the impact of drought on communities. It also helps understand how such leadership is dealing with immediate and aftermath of disaster. With isolation being a common trend during the time of disaster, communities are forced to rely on their own leadership and resources until the other spheres of government are able to intervene and reach them. For instance, in the 1987 Guatemala landslide, hundreds of villagers were isolated for days. Local people took their own initiative to deal with the situation and this has in a way strengthened the local leadership (Cuny, 1985:55). Sampath (1999:6) indicates that leaders of a local community play an important role in helping external relief agencies in the relief and rescue process and such an activity is important to minimize the impact of disasters.

In order to explore the knowledge, attitudes, perception and management strategies of the communities' leadership to drought, in-depth interviews with community leaders were conducted. Respondents in this category involved two traditional leaders/amakhosi, two traditional healers and two religious representatives from both Mabaso and Mbovu Msinga local municipality villages. Each village area was

represented by one leader from each category. Discussions with these leaders centered around their perception of drought in the areas, their drought prediction mechanism, preparedness measures, coping and recovery strategies, their opinions on communities' drought response strategies, their relationship with government institution and their proposals on drought management.

To maintain confidentiality and anonymity of the participants, figures are used to represent them; hence, I represent the participants with identity numbers: i.e. TL1 (traditional leader 1), TL2 (traditional leader two), TH1 (traditional healer one), TH2 (traditional healer two), CL1 (church leader one), CL2 (church leader two).

6.4.1. Description of the seriousness of drought in Msinga

As demonstrated in the introduction, the effects of a natural disaster are not only limited to the loss of livelihood and loss of entitlement, but also have an impact on forms of leadership. Examining community leadership and their perception and attitudes toward drought in the study area, all respondents agreed that drought is a serious economic, social and political problem in the settlements. Older people who grew up in Msinga relate terrible sufferings as a result of drought. Respondent TH1 relates how he and his brother had to travel for 4 days to KwaMapumulo, in the early 1960s in search of food. He witnessed the death of neighbours and his sister who were victims of drought in the 1960s. Describing the extent and seriousness of drought in his lifetime, respondent TH1 argues that starvation was generalized. Livestock were dying "like flies". People died from one day to the next. He remembers that it happened that sometimes people used to run away from burying the dead. He indicated that there would be between five and ten people buried each day in their village.

People were dying like flies. Mothers were abandoning their children, because they had nothing to offer them. It was a very desperate situation to see a mother abandoning her children. Cows and goats, could not talk of them. Today, you will hear, so and so has lost three cows in one day, after one week you will hear that all his cows are finished. People managed to get some help of water and some food from Ulundi, but that was not enough to help people from starvation (TH1, 2009).

Testimonies from respondents indicate that the situation and hardship brought by drought is still prevalent. All respondents agreed that droughts have caused

hardships to local communities and caused many social ills. The most frequently identified social problem was conflict over scarce resources. The researcher, probing the relationship between droughts and conflict over resource use, was told:

Every year, we attend to communities' conflicts, especially when there is drought. People will come to us complaining that their neighbours' livestock devastated their fields. Sometimes we attend to injured people, because they have been fighting over devastated fields by livestock. I remember two years ago, there was a fight between two men and one of them was seriously injured. I and Ubaba Mkhize looked into the matter and ordered the owner of the cows to compensate his friend because his cows damaged someone else's field (TL2, 2009).

Water scarcity and access to this resource has raised many conflicts especially among women. Women are responsible for fetching water and when water gets dry in boreholes as a result of drought, they have to travel long distances. The conflict over access to water comes when a particular group of a community claims ownership of the spring water and prevents neighbouring groups from accessing it. Respondent CL1 indicates to have seen several conflicts emanating from water access. He indicated that in some instances conflict between two individuals could become a family problem and if the conflict is not properly managed, could fuel generalized conflict between communities.

What is important to note here is that in the study area, there have been wars and conflicts of opposing clans and there is reason to believe that any misunderstanding about access to common resources such as water has the ability to fuel generalized conflict in the settlement. Respondent CL1 asserted:

We are dealing with many things in this area. When water is dry in one area, people sometimes do travel long distances. In some instances the other people from the other villages will deny them access to water. And then people will start fighting. But these days we do not get many of these conflicts" (CL1, 2009).

6.4.1 Community's leadership and the knowledge of the causes of drought in Msinga

Four out of six respondents claim that the major causes of the growing level of drought in Msinga are linked to over-grazing and deforestation. Respondents argued that over-grazing is a result of a growing number of cattle but that the grazing land is too small to support the high number of cattle. They also believe that the cutting

down of trees leads to deforestation. This view supports the data cited in Chapter Two which indicates that Msinga is over-grazed and that the communities' reliance on firewood has led to deforestation. However, two other respondents, TH1 and THM2, indicate that the causes of drought are the results of ancestors' anger, because of human disobedience to nature. For instance, respondent THM1 argues that people no longer respect the environment. He believed that it is the rule of nature that when people harvest they must leave some of the harvest in the field, so birds, as part of nature, can feed on what is left on the field (TH1, 2009). Respondent TH2 believes that human greed leads to overuse of natural resources, and that this can anger ancestors. This anger can lead to many problems in society (TH2, 2009). When the researcher was interested to find out how leaving some of the harvest can assist prevent drought, respondent TH1 argues that:

Anything bad we experience in the community is the result of people misbehaving and being greedy. In our times, you were not allowed to harvest everything from your field, because you have to take care that nature does not have the power to cultivate. At that time, our ancestors used to deal directly with someone who misbehaved in that way. It used to happen that, if you do that, you can plough two or three seasons without harvesting anything, until you do something and ask forgiveness from ancestors (TH1, 2009).

6.4.2. Community leadership and drought prediction indicators

The knowledge of the occurrence of drought is grounded on local indigenous knowledge and influenced by cultural practices and beliefs. Respondents in this category have different views on the drought indicators. There seems to be two sides. One side, which includes TL1, TL2, TH1, TH2, CL2, argues that they know when drought is about to occur, whereas respondent CL1 is not aware of drought indicators. For those who indicate that they know when drought is about to occur, they include the behavior of the communities, behavior of animal, vegetation, migration of birds, movement of winds and revelation from the traditional diviner or *Izinyanga*. Elaborating on these indicators, TL2 argues that when people in the villages start complaining of the shortages of food, then it will be known that drought is about to occur. Respondent TL2H indicated that when people start eating crops kept for planting then it will be known that there will be a bad season. This response seemed to be contradictory in some instances. When the researcher probed to find out whether the shortage of food is necessarily the result of drought, respondents in this category argue that there are other factors that are linked to the shortage of

food, but most importantly drought. The argument is that respondents seemed to have confusing predictions about when drought will strike.

Furthermore, participants in the category who claim to know drought's occurrence point to more indicators which include the behavior of animals, vegetation, and migration of birds and movement of winds. To support these arguments, a quotation from participant TL1 is provided as follows:

We know when drought is about to occur. What tells us that drought is about to occur, you will see animals - cows, goats - getting thin and in most of instance milk produced per cow becomes very low and sometimes does not give milk at all. When you start observing all these things, then you will know that drought is about to occur. We also know that drought is about to occur from the growing of trees' leaves. In this area, we have certain trees, when these trees grow leaves in June to July then will know that we are going to have rain in time this year. When these trees do not grow leaves on these months, we will expect severe drought and low harvest for this year (TL1, 2009).

Izinyanga play a very important role in predicting droughts. For instance, traditional leaders in the locality consult diviners to find out what the planting season will look like. When it is indicated that drought will happen, then leaders will warn the communities to prepare for a bad season. Respondent TL2 indicates that *Izinyanga* will tell whether there will be a good or bad planting season:

Izinyanga, will tell when this disaster is about to happen. They will ask ancestors and then ancestors will tell if we will have a good or bad season" (TL2, 2009).

Yes, we know when drought is about to happen. There is an *Izinyanga* in the other village, he warns people to be ready if he predicts that there will be a bad season (TH2, 2009).

6.4.3 Community leadership and drought preparedness mechanisms

In examining the local leaders' drought preparedness strategies, it was apparent that there are four major preparedness strategies adopted in study area, but differently understood among respondents. This leads to the conclusion that the views presented here are not collectively shared by all respondents. One of these preparedness strategy (1) is the arrangements of grazing pastures with distant communities, (2) growing drought resistant crops, (3) migration of men to urban areas in search of formal and informal employments and (4) praying to ancestors to

prevent drought from happening. These four strategies are only acknowledged by respondents, TL1, TL2, TH1 and CL1.

- 1) **Grazing arrangement with distant traditional authorities:** Exploring how grazing arrangements are made between communities, TL2 indicates that due to the raising level of drought in Msinga and surrounding local municipalities, traditional leaders in these areas consented to receive and send members of their communities to graze their livestock in an area which is not affected by drought. Arrangements of grazing with distant communities play a very important role in maintaining livestock in Msinga. As demonstrated early in group discussions, this process poses some challenges. In some instances, all surrounding municipalities may be affected by drought at the same time. On the other hand, the travelling distance from one area to the next is a challenge. Seasonal or transhumance migration requires many days of travelling and staying until the drought is over. Another challenge is limited land with the capacity to take care of livestock. As in most rural areas of South Africa, land availability is very limited. When there is transhumance migration, this places more burdens on the already vulnerable environment due to crowding of livestock. As a result, some of cattle keepers decide to remain home and risk the loss of the livestock. The researcher, in probing the effectiveness of this strategy in preventing drought, learned that all respondents in this category indicated that these strategies are not effective and contribute very little to prevent drought from affecting their livestock and crops of the community.
- 2) **Growing drought resistant crops:** Growing resistant crops also plays a very important part in preventing drought. Respondent TH1 argues that there are a number of non-indigenous crops introduced in Msinga because of their capacity to resist drought conditions. Among these crops are sorghum, watermelon, sweet potatoes and a variety of maize. Respondent TH1 believes that these crops bring some ease to the lives of the communities even when the rain does not come when expected. This view is shared by all respondents. Respondent, CL1 for instance, argues that sorghum not only plays a role as a food staple but allows communities to generate cash. Sorghum is used for brewing traditional beer, which is sold and the brewer can generate income to purchase food. The

respondents indicated that drought-resistant foreign crops and plants continue to be introduced in Msinga by communities themselves and local organizations. However, the introduction of foreign crops and plants bring some form of threats to indigenous crops of Msinga. Respondent TH2 argues:

People are bringing all sorts of crops here. Some people do not want to eat them, because they say that this place is dry and they want to increase food. How can you bring something that people do not want to eat? That is bad. Some of the things that people used to eat; you can't find them again (TH2, 2009).

Another form of preparedness mechanism to drought is the migration of men to urban areas in search of employment. However, as demonstrated in the focus group discussions, this strategy has limitations and is not shared by members of the communities. Migration may be a decision taken at the household level, but which is not necessarily shared by all members of the communities. Examining how migration can ease drought, respondent CL1 indicates that those who have working relatives are less vulnerable to drought (CL1, 2009). This statement is hard to prove.

Praying to ancestors as a preparedness mechanism was again mentioned during the interviews. Respondents TL1, TL2, TH1, TH2, and CL1 argue that when drought is predicted, members of the community are organized and go to the mountains for two or three days to communicate with ancestors. When ancestors have not answered in a given time, they will have to spend more days until the ancestors answer. From the mountains, ancestors will make recommendations on what needs to be done in order to avoid drought.

6.4.4. Community leadership and drought mitigation strategies

Examining leadership and coping strategies to drought, all respondents indicated that there are no commonly shared coping strategies. They indicated that coping strategies depend on individuals and households. For instance, CL1 pointed out that all households are not affected in the same way. He argues that some people are cattle keepers, others live on agriculture, while a few are employed. All respondents said that there is nothing they can do to assist communities cope with drought. They indicated that when there is severe drought, they have to call upon the government

to assist. However, they complained that their call to government to assist communities always falls on deaf ears.

They told us to work together with people from the government when we have problems. When people have problems of water as a result of drought, we go to these government people to tell them that people are suffering and need water and food, then they will keep quiet. People will come to us asking for help, and then will tell them that the government has given us nothing. Sometimes people think that we get the money from these people and we keep it for ourselves. This is really undermining our authority in these communities. Sometimes we get help from some NGOs and Churches, but the government nothing at all. You will see them sometimes once a month or not at all. They will come with the vehicles calling people to come and collect water from their cars, after then you will not see them again (CL2, 2009).

6.4.5 Relationship between community leadership and government institutions

Analyzing the relationship between community leadership and government institutions in terms of drought management and responses, the results demonstrated that there has never been cooperation between government institutions and community leadership. For instance, both respondents TL1 and TL2 indicated that they never been consulted by the government to seek their opinion on issues of drought and other issues affecting the community. Again, they indicated that there are some projects taking place in their localities; however, they are still not being consulted. The lack of consultation angers all respondents. In another instance, a church leader complained about some charity organizations that do come to assist the communities without the community leaders' knowledge and consent. He indicated that this undermines their authority in the community. Respondent CL2 indicates that sometimes the assistance comes when it not needed. He gave an example in 2004, when there was severe drought in Msinga. He argued that some organization came to assist when the drought was over, when people were able to grow their own foods.

6.4.6. Community leadership and proposal on drought management

The question here was whether community leaders are keen to develop drought management programmes. All respondents agreed that they are keen to do so. When the researcher probed to find out how they are planning to do this, the respondents argued that this can be achieved if there is a partnership between all institutions, churches, government institutions, traditional leadership and local

organizations. For instance, Respondent TH2 indicated that the proposed drought management programme should focus in creating jobs and providing water to the communities. He believed that once these are achieved the impact of drought will be minimal. Job creation and water services for both domestic consumption and irrigation are paramount from all the respondents. Analyzing the community leadership proposal on drought management programme, one may conclude that they do not have a clear strategy. Dependence on government and other competent bodies is crucial. When the researcher probed whether indigenous knowledge could help to mitigate drought impacts, all respondents agreed that indigenous knowledge alone cannot help improving their conditions without government intervention.

6.5. Conclusion

This chapter presented the demographic information of the participants from focus group discussions. Demographic information included participants' gender, age, and level of education, sources of income, employment status, participants' membership, land entitlement and access to water for irrigation. These elements have been analyzed to see how they facilitated or hindered communities' ability to respond and adjust to drought conditions in their settlement. It is believed that the ability of households to cope and adjust to external shocks is facilitated by the quality and quantity of livelihoods that have to undertake. The findings from the demographic information demonstrated that participants lack assets and have no access to basic services, which proved that these communities are vulnerable to external shocks, in this case drought. Most importantly, it was apparent that all the participants lack assets and access to social facilities and it was apparent that women are more vulnerable to drought because of their economic and social status.

The findings from group discussions revealed that communities in the study area have indigenous knowledge to predict, prevent, mitigate and cope with drought, such as cultivation of drought resistant crop, seasonal migration and versification of the market. However, this knowledge presents many weakness and limitations. One is that since the level of poverty is high, communities do not have assets to convert into other consumerable assets. Indigenous knowledge is dying out, vaguely

understood by all members of the communities. Communities have no means to diversify their income when drought is severe. Combining all these factors, there is a reason to believe that these communities are vulnerable and unable to resist the drought effects.

Part III of this chapter presented the findings from interviews with key informants, which included traditional leaders, traditional healers and churches leaders. The findings from interviews in this category demonstrated that community leaders have drought management strategies, but it was not understood the same by all respondents. What came from the discussions is that this form of knowledge served very little to prevent and mitigate drought. Limiting factors as indicated by all respondents is the lack of external support, communities' inability to cope due to the high level of poverty and unemployment. The lack of government institutions accountability and consultation with community leaders has also pointed out as major factors affecting their authorities.

CHAPTER SEVEN

SOUTH AFRICA'S DISASTER MANAGEMENT SYSTEM IN PRACTICE

7.1. Introduction

One of the major objectives of this study is to examine the South African government's policy to mitigate and prevent the effect of drought on the communities of Msinga, the effectiveness of this policy, and how it helps and supplements rural communities' drought management strategies. This chapter is divided into four sections, which in turn are divided into subsections. The sections cover disaster preparedness, disaster mitigation, relayed disaster warning and, lastly, disaster relief and assistance. The first three topics were chosen because they cover all the aspects of the UN IDNDR Scientific and Technical Committee and analyze the South Africa government's shift from emergency management to disaster risk reduction. This is important as it helps understand whether the South African government is adhering to this policy shift and how it is applied in the context of Msinga.

In order to analyze and review government's disaster management policy, the researcher conducted intensive interviews with key government officials in the area. These comprised of two Local Councilors, one official in charge of water and disaster management and two representatives of local organizations. Interviews with these authorities centred on their perception of disaster management policy and legislation. This chapter provides the second set of data, the first set from focus groups and individual interviews is in the previous chapter.

7.2. Disaster Preparedness

Disaster preparedness encompasses all aspects of disaster management. According to the IDNDR's Scientific and Technical Committee, disaster preparedness involves the following efforts: policy commitment; hazard; vulnerability and risk assessment; creation of education and training initiatives; establishment of national committees; and the implementation of initiatives involving city officials and local level organizations as well as members of communities (United Nations, 1999: 6-9).

The UN IDNDR's Scientific and Technical Committee claims that one of the most essential elements of disaster preparedness is the development and implementation of appropriate policies and disaster response plans (United Nations, 1999). In South Africa the objective of implementing the 2002 Disaster Management Act was to improve South Africa's disaster risk reduction policy deficit and focus on the shift from emergency response to risk-reduction in accordance with the UN IDNDR's Scientific and Technical Committee. The new approach to disaster management, reflected in the White Paper on Disaster Management (2002) focuses on pre-disaster risk reduction, which includes the adoption of measures to prevent certain hazards or potential disasters. It also includes prior mitigation of the effects and consequences of potential disasters together with measures to ensure adequate preparedness to respond to disasters once they occur (United Nations, 1999).

Preparedness has been regarded as the most fundamental component of anti-disaster measures and a necessity to address the consequences of hazardous events (United Nations, 1999). As discussed at the beginning of this section, disaster preparedness encompasses measures taken before a disaster, which are aimed at minimizing loss of life, disruption of critical services, and damage when disaster occurs. Preparedness also encompasses a number of factors, presented below.

1) Policy Commitment: To what extent is the South African government committed to confronting issues of disaster with special reference to drought in Msinga? The IDNDR stresses that every government has the sovereign responsibility to protect its people, infrastructure and national, social or economic assets from natural hazards (United Nations International Strategy for Disaster Reduction, 2002:17).

In South Africa, in terms of the Disaster Management Act, 57 of 2002, each sphere of government has been given specific responsibilities with strong emphasis on the elements of prevention, preparedness and mitigation and risk-reduction (Disaster Management Act, 57 of 2002). Each municipality was also required to compile a disaster management plan which, in terms of section 26(g) of the Municipal Systems Act, 32 of 2000, must form part of its overall Integrated Development Plan (Municipal Systems Act, 32 of 2000). National Government was to issue, in due course, the necessary guidelines by means of a national framework as well as Regulations in terms of the Act, to provinces and municipalities (Municipal Systems Act, 32 of 2000).

However, as demonstrated in the findings of this study and based on the lessons emanating from the study areas, government structures have not implemented this policy effectively in Msinga. The Disaster Management Act seems to have achieved very little. Where attempts have been made to intervene, they have been performed in fragmented ways, vaguely understood by the communities and in some instances conflicting with the needs of the communities and its leadership. Government policies and strategies as applied to drought in Msinga lack political commitment, a desire for openness and for community participation. There have been no early attempts to devise policy plans (Anonymous government official, 2008). The lack of policy commitment in Msinga is illustrated by this participant's observation:

I acknowledge that we as government have never taken the issues of drought seriously in Msinga. People have been suffering from this disaster for generations. People and their livestock have been dying, but no action has ever been taken. Only you will hear that drought has been declared disaster in some areas and provinces, such as Eastern Cape, but in this area, nothing has happened (Anonymous local official, 2009).

According to this participant, the policy commitment has not been translated into proper and clear guidelines to deal effectively with the droughts prevailing in the area. It seems that local policy-makers receive almost no financial and administrative support from provincial and national government when it comes to the question of drought, despite this being a mandate of government and municipal structures.

As demonstrated in Chapter Four, the South African government committed a substantial amount of money to deal with drought in South Africa and in KwaZulu-Natal in particular. For instance, in October 2003, the South African government approved an allocation of R250 million for drought relief. In November, the government increased the allocation for drought relief assistance by R250 million. The total allocation up to the end of 2003 was R500 million. A further allocation of R500 million was considered in the next financial year for long-term intervention (Drought Information Bulletin no.1/2004). In 2003 the government allocated R1.2 billion for a food emergency scheme to be used in 2004-2006 (Drought Information Bulletin no.1/2004). On 5 December 2003 the government announced an emergency water provision programme and municipalities received emergency assistance to help maintain domestic water supplies for both commercial and subsistence farmers. In terms of this programme, affected municipalities in KwaZulu-Natal received R21.6 million and a further R8.2 million was made available for immediate allocation (KwaZulu-Natal Drought Report February 2004). National Cabinet approved a further R250 million from which the affected areas in KwaZulu-Natal were allocated R49.05 million on 18 February 2004 for support programmes (KwaZulu-Natal Drought Report February 2004).

Despite this massive financial injection, the findings of this study reveal that the funds did not reach Msinga. This is demonstrated by one of the local municipality ward councillors who claimed that:

Issues of finances are a serious problem. In our municipal coffers, I do not think that there is any money available specifically for disasters. When drought hits, people will ask us for assistance, and we have to apply from provincial government, but it is very hard to get any funds. Only what we have is to provide people with water, using the cans with municipal water tanks. I think that even that water is insignificant, but it is also unsafe for people to drink (Anonymous local official, 2009).

This opinion is supported by that of community leadership, who claim to be unaware of any government disaster and drought programme. One member of a local organization, who also asked to remain anonymous, stated that:

Here, people are working in the dark. What you are talking about regarding government drought programme does not exist here. We only hear that there is a

department of disaster management, but I do not know what they do. What I only know is that drought is serious in this area. People have to defend themselves, but I don't think that government has done anything and can do anything about it. We have heard sometimes ago, that the government has intervened in other areas during drought. But here, nothing has ever happened (Anonymous member of local organization, 2009).

During the very period in which the funds were committed, many farm workers lost their jobs as a result of drought and many members of rural communities had to leave and seek work away from home (IRIN, 14, June, 2007).

Local government officials, local organizations, church leaders and traditional leaders interviewed for this study argued that a declaration of drought in the area is often a publicity exercise, as nothing is usually done after the declaration (Interview, 2009). In addition to funding limitations, human capacity issues may further delay the completion of drought assessments. According to Mr. Msizi (not his real name, 2009),

...[one of] the greatest limitation of the South African disaster management system is the general lack of capacity and skills to effectively deal with and promote disaster management.

The most significant challenges in implementing the Disaster Management Act would be for each municipality to undertake its own risk and vulnerability assessment and to complete its disaster management plan accordingly, but [they] also need sufficient funds to achieve this (Personal interview, 2009).

This suggests that it may take a considerable period of time before each municipality can conduct its own hazard and risk assessment. This is problematic because without this information the government cannot implement a targeted strategy to ameliorate the effects of disaster.

- 2) **Hazard, vulnerability and risk assessment:** The UN IDNDR Scientific and Technical Committee suggested that local and national authorities need to integrate hazard assessment more fully into their overall development plans (United Nations, 1999: 6). Implementation of Local Agenda 21 initiatives should also include hazard assessments (United Nations International Strategy for Disaster Reduction, 2002). These approaches, which should be rooted in financial subsidies from either the national or provincial government, involve delegating decisions and implementation tasks to the most appropriate level,

beginning at the local level with individuals and households (United Nations, 1999: 6). This suggestion stems from the notion that poverty places people in precarious situations and unsustainable means of survival that can create a range of hazards that cause disasters, or at least aggravate what may have otherwise been minor calamities (Davis, 1999, cited in United Nations, 1999: 87). As such, individual households need to become involved in the hazard assessment process. The government of South Africa has provided an enabling environment for an effective disaster risk reduction system through legislation that is consistent with UN ideals.

In the context of Msinga, the findings from the study area demonstrate that there was no assessment of drought and its impact on the communities. Financial limitations have also been indicated as one of the major factors limiting the capacity of the local municipality to effectively carry out drought vulnerability and risk assessment. Community members are not aware of any government programme on drought, despite this being recognized as a major disaster. According to a ward councilor, who also asked to remain anonymous:

In this municipality, we do not have any funds which are readily available for disasters such as drought. There is not any programme that assesses the damage caused by droughts. Drought is so serious. I think, if there is any assessment done about drought in this area, I think that Msinga will be ranked as number one most affected area, not only in South Africa, but in Africa, even far from Ethiopia and Kenya as far as I know" (Interview with local official, 2009).

An examination of government documents revealed that there is no record of the damage caused by the drought in Msinga. As the SAHR (2000) acknowledged, South Africa is well prepared in terms of disaster management theory, but ill-prepared in terms of putting this theory into practice.

- 3) **Education and training initiatives:** Since the shift from emergency management to disaster risk reduction, there is an increased need for the development of human capacity in the multidisciplinary field of disaster management, as national governments are now obliged to give the local authorities more responsibility than they had in the past. In order to meet this demand, a number of education and training initiatives were developed by

IDNDR (United Nations, 1999c). The approaches ranged from practical community-based training initiatives to postgraduate education programs (United Nations, 1999c).

Exploring the presence of education and training initiatives in Msinga, the findings demonstrated that there are no education and training initiatives and no attempt has ever been done to implement such training. When the researcher asked whether there are education and training initiatives in Msinga, an anonymous councilor replied:

Here, we do not have any initiatives regarding drought. How can we have such initiatives while there are no funds for such programmes? These programmes need money to be implemented. In the municipality we do not have project and initiatives of such kind. We cannot carry out a project of this magnitude without sufficient funds (Anonymous Councilor, 2009).

- 4) **National Committees:** In General Assembly resolution 44/236, in which the IDNDR was founded, member states, including South Africa, were asked to formulate national disaster mitigation programs, establish national committees or focal points, mobilize support, increase public awareness, pay due attention to health care and related forms of essential social and economic infrastructure and improve availability of emergency supplies. The formation of multi-sectoral national committees or focal points was considered to be the best means for realizing these goals at the local level (United Nations, 1999). According to the committee, most countries adopted the progressive disaster risk reduction principles advocated during the IDNDR, and only a few countries continued to focus on the more limited concepts of emergency response (United Nations, 1999:9).

The South African government has adopted the UN resolution and the proactive approach. In theory, it has a well-established national committee. These developments suggest that the government is committed to disaster risk reduction and is attempting to build disaster risk reduction capacity in provinces, metropolitan areas, districts and local municipalities. While it is true that there are departments in charge of disasters in municipalities, they have no clear mandates. They are badly coordinated and not visible to the public. While they

may be called departments of disaster management, when asked about their role, they indicated that they deal with the problem of water, not drought or any other disasters. This was of concern to many officials who participated in the study. They argued that there is no clear direction as to how such departments function. There were also concerns about the lack of funds to effectively carry out the activities related to water and its delivery to the communities in the area.

7.3. Disaster Early Warning

An effective early disaster warning includes an accurate warning to the public from a variety of sources, such as radio, newspapers, TV and community meetings, including a clear and informed statement of instructions for effective action to minimize the consequences of the hazard, and a timeous disaster declaration, creating quick access to provincial and national resources (United Nations, 1999c, p.8; Health Systems Trust, 2000). These coordinated activities are critical for early warning to become an essential element of any comprehensive disaster prevention strategy (United Nations, 1999c, p. 8). When asked whether an early drought warning was relayed to the rural population when drought is about to occur, a local councilor who asked to remain anonymous said:

Here we do not have such kind of system. We only know about drought, when communities are starting complaining about the shortage of water and when water is dried up. The government has no programme about early warning in this area. How the government can have such programme while there are not even intervention measures? (Anonymous local official 2009).

It seems that the South African government did not attempt to issue drought warnings to the rural population of Msinga. According to same local official:

The government did not put some preventive measures in place before the actual disaster struck, people have nowhere to get information about drought and how they could avoid it. If there should be drought early warning I think that people should be well prepared and drought could not affect them as now they are affected (Anonymous local official, 2009).

It is apparent that the lack of early warning systems has aggravated communities' vulnerability to drought, as they are not well prepared to weather the shocks from drought. The councilor's statement is similar to that of the local NGOs, who claim

that the population lacks information about drought. The lack of government early warning and inadequate capacity of indigenous knowledge systems to predict drought has aggravated communities' vulnerability to drought and ill prepared them to respond to drought. A member of an NGO called Msinga Top, who preferred to remain anonymous, argued that:

What people are lacking in this area is that they do not have information on when drought is about to happen. People in this area are just confused. And what makes it worse is that the majority of the people living in this area, do not have access to information such as radio, TV and news people and most of the people are even illiterate to know such information. What I think that the government should do? It should have some form of platform where local leaders are informed about drought early, so they can inform the communities (Anonymous, 2009).

This study revealed that the lack of effective early warning resulted in households facing increased risks of death of livestock, illness and loss of livelihood. Taking into account their social-economic circumstances, their existing vulnerability is heightened. The situation calls for effective interventions that are able to minimize risk and increase resilience, an objective that Alexander (2000) regards as a major principle of natural disaster management.

While it is important for the government to provide early drought warning the community, it is however important to remember that, early warning on its own, can play a very minimal role, if social and economic conditions of vulnerable communities are not adequate. The lack of adequate assets and any other form of sustainable livelihood, present communities with few options even if is know that drought or any other disasters are about to happen.

7.3. Disaster Relief and assistance

An important aspect of many disaster management plans is the provision of food supplies and emergency supplies. In any disaster the fulfillment of basic needs is a priority. The government report indicates that food and supplies have been provided to rural communities in northern KwaZulu-Natal, which includes Msinga (Drought Information Bulletin no.1/2004). The findings of this study, however, contradict this assertion. An old woman in the focus group argued that:

We have heard of such aid, and we are always told that people from the government will help us keep our livestock and crop alive but we never had seen any of those people here. Our councillor promised us food and money, up to now we are still waiting. Did you bring us any money or food? We are all hungry as you can see (Focus group discussion, 2009).

The non-existence of emergency programmes means that people in the area are left to fend for themselves and rely on what they have without any external support. There are also contradictory reports on aid and emergency relief. According to the anonymous local official the only form of relief available in the area is the provision of water to households:

The only form of emergency measures that we have is to distribute cans of water to communities when a drought strikes. In my view, I think that water provided to communities is meaningless because when drought happens, we only provide 20 liters of water to a household and we come back again after one or two weeks (Anonymous local official, 2009).

This seems to contradict the communities' claims that they have not received any form of assistance from the government or any other sources. The limitations of the assistance provided are acknowledged by some officials. A ward councillor who chose to remain anonymous argued that:

Government contributions to the communities were very limited, and as a result did not reach the majority of households (Anonymous local official, 2009).

7.4. Initiatives of city officials and local level organizations

The scientific and technical committee reported that once local authorities became aware of the purpose of the IDNDR, they demonstrated an increasing willingness to participate in the UN Decade's activities (United Nations, 1999). The committee also reported that local communities' participation has been an important contributor to the Decade's overall success (United Nations, 1999). As a final recommendation, the scientific and technical committee suggested that disaster risk reduction should become a central component of many local-level policies, including those that target social vulnerability, urban risk reduction, land use planning, and hazard assessment (United Nations, 1999:9). This final suggestion demonstrates the IDNDR's

commitment to vulnerability reduction through social empowerment, which is a disaster risk reduction strategy.

The findings of the study have demonstrated that there are no local organizations or clubs dealing specifically with issues of disaster and drought in particular. This contradicts the claim by local officials in section 8.2 that there are departments that deal with disasters in Msinga. Formal disaster management organizations do not exist in the communities. Therefore, the need to form such organizations is an imperative, as it can assist the communities to share knowledge on disaster, in particular drought and its management.

Examining South Africa's government poor responses to drought in Msinga, there is reason to believe that there are a number of factors that might have hampered government efforts to effectively respond to drought. As demonstrated in Chapter Two, and according to testimony of one the participants, political infighting between the IFP and ANC in the municipality has led to a situation where the area has been ignored. The following quote support such assumptions:

People in this area, can't get any assistance from the councillor. As you can see, many people in this area are now ANC members. Because the councilor is an IFP, he does not like anyone who belongs to ANC. Go and see where there are members of the ANC, you can't get any services, while many villages where there are many IFP's you will found people have access to many things, not us here (Anonymous concerned member of the communities, 2009).

During the course of this study and in discussions with members of the community, it emerged that during the severe droughts in 2000 and 2003-4, the central government made drought assistance to the communities of Msinga, but because of the infighting between ANC and IFP, the assistance was not made available to the affected communities. It emerged that some of food supplies rotted in stores and were not distributed to the effected people (Concern of members of Msinga, 2009). While the government responses to natural disasters especially to floods, for example in the Northern Province (Khandhela, 2002) which also was marked by difficulties, in Msinga little attempt had been made.

There is reason to believe that political infighting in the area may have hampered government response to drought in the area (see Chapter Two) history of violence and conflict between ANC and IFP.

7.5 Conclusion

The literature reviewed in this study demonstrated that disasters, in particular drought and its management highlight vulnerability to a great extent. While it is recognized that the droughts noted in this study have occurred naturally, to some extent their impact depended on the management and the amount of preparation undertaken for such occurrences. Theories and policies likely to succeed in reducing vulnerability to disasters are those that take into account the characteristics of households as a way of understanding vulnerability. Disasters and the drought prevailing in Msinga therefore need to be treated as socio-economic problems so as to address the root causes of the increase in vulnerability to natural disasters. The poor capacity of government in dealing with disasters has serious repercussions. Disaster management requires disaster reduction, planning, and capacity to reduce the losses borne by impoverished households. This process will be more effective if there is efficient mobilization of resources, rapid response, long-term strategies to prevent drought and reduction in the risks of vulnerable groups, rather than transferring risks. The new legislation, the Disaster Management Act, should ensure that any forms of financial and bureaucratic bottlenecks are eliminated so that assistance reaches people more quickly and is based on developing a long-term programme targeting the reduction of risks from the drought prevailing in Msinga. It is also important that NGOs in the area are empowered and involved in disaster management and are able to play their full role.

CHAPTER EIGHT

DISCUSSION RECOMMENDATIONS AND CONCLUSIONS

8.1 Introduction

The overall objective of this study is to examine the management of drought through the use of indigenous knowledge systems (IKS) and to establish whether the government's policies are concomitant with local knowledge of drought management. This chapter seeks to examine this relationship and determine whether or not there is a match between the community's IKS and government policy in the process of drought management in Msinga. The question under investigation is whether government policy helps complement community IKS to effectively adjust and manage drought prevailing in the area. In order to discuss this question, this chapter starts by reviewing literature on the integration of IKS and public policy, followed by recommendations and conclusions.

The review of literature is followed by a review and further discussions on the findings from Chapters Six and Seven. As demonstrated in Chapter Six, there were nine key themes which emerged during group discussions. This chapter therefore focuses on these themes and examines how IKS is perceived and understood by the members of the communities in the face of drought and how they measure its effectiveness to drought mitigation. Review of the findings from the key themes is followed by a review and analysis of the South African government disaster management policy and its effectiveness in drought management in Msinga.

The analysis of both IKS and government disaster management policy are followed by an assessment of the relationship between IKS and government policy, examining whether there is a match between the two systems of knowledge.

8.2 Integrating IKS and public policy

It has been argued throughout that if drought management is to succeed, there is a need to integrate IKS and government policy (Makali *et al*, 2010, Opoku, 2005 and Hoppers, 2002). Examining literature on IKS and policy, the findings demonstrate strengths and weaknesses in both systems of knowledge in response to environmental change and adaptation (Makali *et al*, 2010 and Opoku, 2005). Therefore, I suggest that well-integrated IKS and policy can make communities more resilient to environmental changes and external shocks. Learning from communities and government responses to drought in North East of Kenya (Orindi, Nyong and Herrero, 2008), these experiences reaffirm that communities and government intervention in the North East were well-integrated in response to drought and therefore communities in this region were more resilient to droughts. However, in the North West, there was conflict between indigenous knowledge and government responses and as a result communities in this region remained vulnerable to drought conditions.

Two requirements have been identified in the integration of IKS and public policy (Opoku, 2005, Hoppers, 2005 and Khor 2005). First, neither of the two systems should necessarily dilute the essence of the other. Second, neither of the two systems should invalidate the underlying principles of either system, rather, integration of the two systems should be considered within the context of transfer of knowledge and responsibility from a higher to a lower level within an established and intact framework.

Examining both IKS and policy in the process of the management of external shocks, it is argued by Opoku (2005) and Orindi, Nyong and Herrero (2008) that where IKS or vice versa presents weakness, it can be supplemented by the other systems and the desired ends can easily be achieved. IKS has the potential to predict, prevent and mitigate drought, however, it has some strengths and weakness. On the other hand, the government, through its policy and technological means can predict drought through weather-forecasting. It can prevent and mitigate the adverse effects

of drought through development programmes, but it also has weaknesses and strengths.

Learning from this study, the failure of IKS to predict drought has been manifested in Msinga. Communities have knowledge to predict drought, however, this knowledge is vaguely understood and communities failed to act on this knowledge to prepare against drought. On the other hand, for instance, during the 1999 flood which affected most of South Africa and the Northern Province in particular, the government, through its policy and technology, failed to forecast the flood. It provided unreliable early warnings, which resulted in communities being ill prepared, causing the loss of lives and livelihoods (Khandlela, 2002).

In Africa, the integration of IKS and policy presents a number of challenges. This ranges from the lack of public participation in policy formulation and implementation to the lack of development programmes to supplement communities' IKS where its capacity to cope with external shocks is limited (Makali *et al*, 2009, and Mwaura, 2008). In this context, governments lack the ability to mobilize and support local action, resources and knowledge. The lack of openness and accountability on the part of government hinders communities to act collectively during uncertainty (Mwaura, 2008 and Makali *et al*, 2009). As discussed in the theoretical framework of this study (Chapter Three), it is believed that collective effort is important as it facilitates everyone pulling in the same direction, defending the interests of members and achieving the desired ends. The lack and breakdown of social and political ties can lead to a situation where one of the two systems will remain powerless and undervalued (Mwaura, 2008). This brings us to what Putnam and Feldstein (2003) call the "foundation of social capital". They believe that when all players are brought together, they can generate productivity which in turn can sustain lives. Here players mean members of the communities and official institutions. Learning from the case of Msinga and drought, it may be concluded that this is what has been and is still lacking in Africa.

In South Africa, as discussed in Chapter One, during colonialism and apartheid, there was a mismatch between policy and IKS. Communities' knowledge was eroded by government policies (Bond, 2002, p.64). Decisions on disaster management often

ignored the need and aspiration of indigenous people, and did not provide appropriate support to these communities. As a result, communities remained vulnerable to external shocks and to drought in particular (Bond, 2002 and National Drought Consultative Forum, 1992). In addition, under apartheid, the movement of people was restricted, and the land given to people was of very poor quality. The restriction on movement may have limited a community's ability to effectively practice its IKS.

Now, turning to the current democratic government, much has been said about IKS and it has been given renewed attention. Integrating IKS and public policy became one of the South African government priorities (Department of Science and Technology 2004). However, policy on the integration of IKS and public policy is vaguely defined and does not specify areas of cooperation. It does not define the responsibility of IKS and public policy. The ambiguous language in the policy makes it difficult to effectively integrate IKS and government policy.

The next section discusses how communities through IKS, and the government through its policy and technology, responded to drought and whether there is match between government policy and communities' IKS in response to drought in Msinga.

8.3 Community IKS and Government responses to drought in Msinga

Analyzing the relationship between communities' IKS and government responses to drought in Msinga, this section starts by reviewing the findings from key themes that emerged from group discussions and government policy in relation to drought in Msinga. Findings from group discussions emphasized the participants' understanding and interpretation of IKS in the face of drought and its effectiveness in mitigating the effects of drought. Government policy is analyzed in relation to its responses to drought and its effectiveness in mitigating drought effects on the communities of Msinga.

As noted in literature, to understand how a particular group of individuals or communities responded to external shocks, it is important first to understand the

form of livelihoods such group has to undertake. As demonstrated in Chapter Five, both indigenous knowledge and livelihoods are intertwined (Dixon, 2005 and Von Kotze, 2002). In this context, indigenous knowledge and livelihoods can be understood as a set of skills and actions which facilitate and maintain well-being and adapt to changes in living conditions, enhancing capability to resist an external shock (Dixon, 2005, and Von Kotze, 2002). Combining both indigenous knowledge and livelihoods are important determinant factors of an individual's or household's resilience to external shocks and adaptation (Dixon, 2005, and Von Kotze, 2002). Adapting and coping with environmental changes, communities manage indigenous resources through their knowledge systems, thus, indigenous knowledge and indigenous resources become inseparable.

Having explored the communities' livelihoods in Msinga, the findings demonstrated that the quality of life is very poor considering the activities that have to be undertaken in order to generate a sustainable livelihood. Major sources of livelihood in the study area are agriculture and farming; however, given drought conditions, low income and poor socio-economic status of the communities they are unable to build a sustainable livelihood and therefore are unable to resist the effects of drought. There is reason to believe that with limited commodities and services required for an acceptable standard of living, communities remain powerless and are vulnerable, unable to resist the effects of drought through IKS.

Now turning back to the findings from the key themes from group discussions, the findings demonstrated that drought is indeed a major social, environmental and economic problem in the settlement. The findings showed that drought has affected all indigenous sectors of livelihoods of the communities. Agriculture and farming, supplemented by farm seasonal employment and traditional beer brewing by women, remain major sources of livelihoods to these communities. It was apparent that the effects of drought to these sources of livelihoods reduced communities' resilience and capability to resist and adjust to drought conditions.

The findings also demonstrated that communities' vulnerability to drought is aggravated by the breakdown of social cohesion. It has been revealed that when drought occurred, a number of social conflicts emerged. From group discussions it

may be deduced that there is low social cohesion and mistrust within the Msinga communities. The mistrust and low social cohesion must have been obstacles to the communities' effort to act collectively against drought. Low social cohesion is manifested in many areas of social support and cooperation. Learning from different countries during times of drought and uncertainty, members of the communities act collectively and share available resources and help each other (Anderson *et al*, 2007) and Rahmato 1991). In Msinga, these areas of social support and cooperation resulted in many conflicts. During group discussions, the findings demonstrated that communities rely on small loans as a coping mechanism. However, participants complained about some lenders who take advantage of the vulnerable situation of the communities by hiking interest rates. Other participants complained about the behavior of some lenders, when it comes to demanding their money back. It appears that a lack of trust and poor social cohesion still act as major barriers for communities to act collectively.

Another limitation has been manifested in the area of grazing. Exchange of grazing land is an important means of survival during uncertainty any among pastoralists (Anderson *et al* 2007). However, the findings from this study demonstrated that where exchange of grazing occurred there were conflicts between communities as the competition to available resources became eminent. A breakdown of social ties came out repeatedly during group discussions. Elder participants, aged 50-80, indicated droughts in the area have been there for many years, and when people were united and "shared what was available" this reduced the severity of the impact of drought. Participants indicated that when people were starving in one area, they could travel and get help from their neighbors or friends. But today, this no longer exists. What should be noted here is that due to mistrust and low social cohesion, members of the communities act independently to external shocks. There is reason to believe that given the breakdown of social cohesion, it has led to a situation where members of the communities placing reliance and expectation on government assistance. The government assistance also remains an unreliable source of support. Communities' dependency and expectation from government assistance will be discussed later.

Moreover, the findings from this study revealed that communities in the study area have indigenous knowledge to predict, prevent, mitigate and cope with drought. However, this knowledge presents many weakness and limitations. First indigenous knowledge is vaguely understood by all members of the communities in Msinga. It was apparent that all members of Msinga understood differently early warning drought indicators, but failed to act on these to prepare against drought. This may lead to the conclusion that the lack of collective understanding and action is a result of a breakdown of social cohesion. This point refers back to what Khor (2005, p.54) termed the “death of indigenous knowledge”. Khor (2005), believes that IKS is considered to be dying when is no longer shared by all members of the communities residing in the same environment.

Learning from the findings, the result showed that communities have limited activities to diversify income in order to adjust to drought conditions. The form of activities that has to be undertaken is limited and not shared by all members of the community. The majority of members of the communities have no means to diversify their income when drought is severe. This point again brings us back to Scoones' (1998) argument. He suggests that the best way for poor people to mitigate the effects of external shocks and to reduce vulnerability is to have several indigenous ways of making a living. This must be combined with social and economic capital. The death of social cohesion and the lack of assets to diversify income resulted in the communities' members not being able to match social and economic capital.

Furthermore, examining the communities' proposals on a drought management programme, the findings demonstrated that communities' indigenous strategy to respond to drought is limited. During the discussion and when the researcher asked whether communities were keen to develop drought management strategies, they all however, placed their desires and expectations on government intervention. This again brings us to reflect on the point made earlier on. The culture of dependency created by the apartheid government led to the erosion of IKS. As argued by Khor (2005), where IKS is diluted and not properly integrated with public policy, it will lead to a situation where IKS will be absorbed and become undervalued and useless by its holders. This stands to be true in Msinga. People expect more from the government, more than what they themselves can do through IKS. The culture of

dependency created by the apartheid regime, inherited and continued by the current dispensation rendered the community unable to act independently through its local knowledge and resources and therefore led to the situation where communities became powerless and disintegrated.

It is obvious that the increased frequency of droughts have challenged the effectiveness of these communities' IKS. With dwindling natural resources, breakdown of social cohesion, together with the lack of assets, rural communities struggle to manage drought through IKS. Poverty, the breakdown of social cohesion and inadequate resources of local communities to implement desired strategies are one of the limitations of IKS being able to reduce the adverse effects of drought.

Given the above limitations, it is important that external players work with these communities and identify ways of cooperation that complement communities' IKS. This cooperation is more likely to achieve sustainable results. Government, given its role and responsibilities, is the primary role player in this process. The Drought Management policy is supposed to create a more effective drought-cycle management system. The assumption is that government policy is to be created that accounts for indigenous knowledge and helps when its capacity to respond to drought is limited. This should minimize the need for emergency interventions and enhance response mechanisms for better action in acute drought. The role of the policy should be to come up with more appropriate drought preparedness and management systems since they are based on in-depth analysis and the understanding of prevailing factors within these communities.

Now, turning to the role of the South African government policy in response to drought in Msinga, the results demonstrated that government responses to drought are limited and even perceived as non-existent in the area. Where attempts have been made to intervene, they have been performed in fragmented ways, vaguely understood by the communities and in some instances conflicting with the needs of the communities and its leadership. Government policies and strategies as applied to drought in Msinga lack political commitment and a desire for openness and for community participation. Government poor response to drought is illustrated in this respondent's statement:

I acknowledge that we as government have never taken the issues of drought seriously in Msinga. People have been suffering from this disaster for generations. People and their livestock have been dying, but no action has ever been taken.

The failure of the government to respond to drought is manifested in many areas. Having discussed this in Chapter Seven, the government failed to provide financial support to local municipalities. The lack of financial support to municipalities is the major factor limiting the capacity of the local municipality to effectively carry out a drought vulnerability and risk assessment. Government programmes on drought remain invisible. Community members are not aware of any government programme on drought, despite this being recognized as a major disaster.

Literature suggests, for example, Anderson et al (2007) that indigenous populations have over the years developed local ways of forecasting, preparing and mitigating drought. However, the government continues to pay very little attention in terms of promoting such knowledge and integrating it into the overall policy framework. Examining government early drought warning forecasts, no efforts have been made by the government to provide technological means to the communities to predict, prevent and mitigate effects of drought. The government, through its technology, could provide early drought warning information. Its weather forecasting could make communities ready to prepare against drought.

It must be remembered however that early warnings, preparedness and mitigation on their own may not achieve much unless matched with an overall policy framework and public participation. The challenge for the South African government in regard to disaster management is to establish an effective and community-based national framework for its response to drought, which ensures a coordinated, participatory, transparent and accountable approach across all branches of government and communities. State leaders in collaboration with and through the community, should promote a supportive and enabling environment where indigenous knowledge can be integrated into policy framework and involve vulnerable communities in this process. This having been said, (see Chapter Three) the South African government did participate in the UN IDNR programme Forum and used the Forum as a stimulus for developing public policy and institutional framework for disaster risk reduction.

Now it is time for these policies to be put into practice and alleviate drought effects in these communities.

8.4. Recommendations

This study identified several gaps which are currently acting as barriers for the communities and government to effectively respond to drought conditions prevailing in Msinga. These can be addressed through the promotion of trust and social cohesion among members of the communities of Msinga and a change in government disaster management policy and its implementation.

8.4.1. Communities and IKS

Chapter Six discussed communities and IKS. Gaps and limitations to the communities' IKS in response to drought in Msinga were identified. They included the lack of trust and social cohesion and limited social network and information sharing among the communities of Msinga. In this subsection, recommendations are made as to how communities could overcome these limitations and respond effectively to drought conditions.

a) *Trust and Social Cohesion*: There is a need to promote trust and social cohesion within Msinga communities. Currently, this appears to be the largest obstacle to sharing and responding collectively to drought. Interventions could work towards addressing the reasons for mistrust, encourage dialogue around such issues, and work at rebuilding weak social ties, noted as a decline in *Ubuntu*⁹ within this community. Interventions may possibly be in the form of getting the communities together and work collectively to find a way forward that will strengthen everyone. As trust and social cohesion increase, it is anticipated

⁹ The concept of *Ubuntu* stretches beyond simply referring to a group of people; it encompasses the idea of unity and interdependence of individuals, both conceptually and practically, in which relationships based on empathy, sharing and cooperation are seen as fundamental to existence as a social being. It may be regarded as that which encompasses the traditional African outlook of, among other things, unity, friendship, love and generosity. *Ubuntu*, then, in its most fundamental form, may be seen as that which underlies the motivation for all care and reciprocal acts, both to close family members, as well as within the community as a whole. For more details on Ubuntu, see: Bamford, R. 2007. Nietzsche and Ubuntu. *South African Journal of Philosophy*, 26(1): 85-97.

that opportunities will develop common strategies to respond to drought, be willing and prepared to become active in and support, possibly both reciprocal and altruistic.

- a) *Social Networks of Information:* as trust, reciprocity and social cohesion are developed, information channels should be encouraged such that sharing information regarding drought becomes a social norm. Identified sources of information, such as sharing information with elders, should be encouraged and training developed on how to share information and skills with family members and interested community members. This will potentially lead to an increase of communities' cohesion and integration, which will probably strengthen the communities' ability to respond to external shocks and poverty in the settlement.
- b) *Conflict resolution:* It is important that traditional approaches to conflict resolution in Msinga are strengthened and a platform of discussion among the communities given more space. Identifying and eliminating sources of conflict will be crucial in bringing the community together in order to reflect on issues that are affecting them and to find common solutions. Dialogue is highly recommended by this research to address the underlying conflict in Msinga.
- c) *Community projects:* establishing communities' self-help projects such as home gardening of various crops, livestock breeding, irrigation, and employment creation are necessary to address the disruption of social and economic activities caused by drought. These projects can be created by the communities in partnership with local organizations and external donors. These projects will again strengthen communities' cohesion and solidarity as all can work together to achieve common objectives and to achieve the desired end. The designed projects must be built on strengths and resources within the community, i.e. identifying, supporting and reinforcing social structures, and utilizing knowledge that already exists in the community. This will help them work together to improve their lives. Promoting a co-learning and empowering process that attends to social and economic problems, including sharing information, emphasizing

knowledge of community members and enabling participants to include their own concerns in discussion will be important.

8.4.2. Policy Recommendations

To reduce people's vulnerability to disasters such as drought, the challenge is to improve people's sources of income and their living conditions. Sampath (1999) notes that any development project for successful disaster management in the rural sector should enhance income levels and economic diversification. Programmes, as noted above, such as home-gardening of various crops, livestock breeding, irrigation, and employment creation, are necessary to address the disruption of social and economic activities caused by drought. These are also important measures to remove chronic food insecurity at the household level and could help families under extreme stress to cope with acute situations. The handing out of food parcels during extreme drought is necessary to save lives; however, the above programmes lessen this need and make community members more self-reliant.

Furthermore, it is important that any initiatives designed to respond to the needs of the communities should be based on a thorough knowledge and understanding of the local context. In addressing rural poverty, it is necessary to re-examine the complex system that has created it. Remedying the existing conditions of the men and women in the study area will require an examination of the circumstances that created such conditions.

The South African government needs to focus on the awareness of hazards, the condition of human settlements and infrastructure, the nature and applicability of public policy, the resources available to the society and organizational abilities in all fields of disaster and risk management and it needs to do so in a more time conscious manner (United Nations International Strategy for Disaster Reduction, 2002b). If the government of South Africa does not speed up the implementation of its disaster risk reduction processes, it may re-experience preventable socio-economic losses. A strategy that the government should consider to accelerate its risk reduction efforts is to reduce the ambiguous language in the Disaster Management Act (Presidency 2003). The new legislation, the Disaster Management

Act of 2002, should ensure that any form of financial and bureaucratic bottlenecks are eliminated so that assistance reaches people more quickly and is based on developing a long-term programme targeting the reduction of risks from the drought prevailing in Msinga. It is also important that NGOs in the area are empowered and involved in disaster management and are able to play their full role.

Money is still an important resource for adaptation to droughts. It is important that credit facilities are made accessible to poor households to enable them to restock after drought occurrences. This should be combined with banking and other forms of savings. I conclude that in the absence of proactive measures by the government, livelihoods of the people in Msinga may be at risk. Evidence of growing vulnerability highlights the urgency of comprehensive new policies that reflect the need to redress the historical political and economic marginalization of rural communities, explore the prospects for decentralization and community-based resource management.

Disaster Management is an important factor in determining the vulnerability of households. While the South African government did participate in the UN IDNDR Programme Forum and used the Forum as a stimulus for developing public policy and an institutional framework for disaster risk reduction, the next step is to apply those disaster risk reduction policies. Vulnerability and risk reduction assessment must be performed. This must be rooted in information from local communities and local leadership.

8.5 Concluding Remarks

Learning from the literature and findings from this study, it is apparent that droughts are endemic in the study area and that drought-management strategies are as intrinsic to local livelihood systems as are seasonal-adjustment strategies. However, community-IKS presented weaknesses in its inability to respond to drought effectively. The major obstacle identified in IKS is the mistrust and breakdown of social cohesion within the communities. The mistrust and low social cohesion must have been obstacles to the communities' efforts to act collectively against drought and maintain IKS in the face of drought. It is important that a comprehensive drought

contingency plan be developed to reduce vulnerability in Msinga. The plan would coordinate the use of natural resources among all potential users and minimize the conflicts that have become the source of social disintegration.

On the other hand, it is reported that the South African government has poor responses to drought. Analyzing the relationship between the communities' IKS and government responses, the findings showed that there is no relationship between IKS and government policy, the reason being that government policies are not implemented effectively in the area. Government's poor responses are not only manifested in response to drought, but also in other issues of critical importance in the communities, such as the provision of social services (i.e. water electricity employment etc.). Unless the government significantly improves the living conditions of these poor communities through socio-economic development, the poor segments of the population will always be disproportionately vulnerable to the adverse effects of hazards. Thus, risk reduction will only be achieved in a thriving economy that provides people with the means to acquire the type of infrastructure and services that makes them less vulnerable to the adverse effects of drought. The implication of the socio-economic strategies should minimize the root causes of the dynamic pressures and unsafe conditions that contribute to the progression of vulnerability from drought.

Turning back to the South African government response and humanitarian assistance to drought throughout the country, it is apparent that the process has absorbed significant amounts of resources, which could have been located for development efforts. Funds for disaster recovery could be redirected towards socio-economic issues. This may result in substantial development gains which may, in turn, result in sustainable communities, thereby reducing vulnerability and increasing the quality of life for all South Africans. Some may argue that South Africa's efforts to advance its disaster risk reduction policies and practices to achieve sustainable development and social equity are progressing too slowly. While this may be the case, the author of this thesis would conversely argue that the speed at which the government's disaster risk reduction system is advancing is limited by the foundation upon which it is based (see Chapter Seven).

The South Africa government needs to focus on the awareness of hazards, the condition of human settlements and infrastructure, the nature and applicability of public policy, the resources available to the society and organizational abilities in all fields of disaster and risk management and it needs to do so in a more time conscious manner (United Nations International Strategy for Disaster Reduction, 2002b). If the government of South Africa does not speed up the implementation of its disaster risk reduction processes, it may re-experience preventable socio-economic losses. A strategy that the government should consider to accelerate its risk reduction efforts is to reduce the ambiguous language in the Disaster Management Act (Presidency 2003). The new legislation, the Disaster Management Act of 2002, should ensure that any form of financial and bureaucratic bottlenecks are eliminated so that assistance reaches people more quickly and is based on developing a long-term programme targeting the reduction of risks from the drought prevailing in Msinga. It is also important that NGOs in the area are empowered and involved in disaster management and are able to play their full role.

References

- Abrams, L., Short, R. and Evans, J., 1992. *Root Cause and Relief Restraint Report*. Johannesburg, Republic of South Africa 8 October, 1992. Johannesburg: National Consultative Forum on Drought.
- Adato, M and Meinzen-Dick, R., 2002. Assessing the impact of agricultural research on poverty using the sustainable livelihoods framework. Food Consumption and Nutrition Division: International Food Policy Research Institute. Washington D.C. U.S.A.
- AFRA, 1992. *Drought, relief and rural communities, Special Report*. Pietermaritzburg, Republic of South Africa 16 November, 1992. Pietermaritzburg :Association for Rural Advancement.
- Alexander, D., 1997. The Study of Natural Disasters, 1977-1997: Some Reflections on a Changing Field of Knowledge. *Land and Rural Digest*, Vol.12, 21(4), pp.284-304.
- Anderson, P.M.L., Farrella, P.J. O., Milton, S.J. and Dean, W.R.J., 2007. Human response and adaptation to drought in the arid zone: lessons from southern Africa
- Assefa, T and Rahmato, D., 2006 .*Conference proceedings: Land and the Challenge of sustainable development in Ethiopia*. Addis Ababa, Republic of Ethiopia 25-28 June 2006. Addis Ababa: Awassa College of Agriculture, Ethiopia: Debub University, Awassa.
- Babbie, E. and Mouton, J., 2001. *The Practice of Social Research*. 1st Ed. Cape Town: Oxford University Press.
- Babbie, E. and Mouton, J., 2004. *The Practice of Social Research*. 2nd ed. London: Oxford University Press.
- Bailey, K.D., 1982. *Methods of Social Research*. New York: The Free Press.
- Ballard, C., 1986. Drought and Economic Distress: South Africa in the 1800s': *Journal of Interdisciplinary History*, Vol17, pp. 359-378.
- Bamford, R. 2007. Nietzsche and Ubuntu. *South African Journal of Philosophy*, Vol. 26, pp. 85-97.
- Bankoff, G., 2004. *Mapping vulnerability: disasters, development and people*. London: Earthscan.

- Barr, D, Seifert, K.A. and Bissett, J., 2005. Biodiversity (Mycology and Botany), Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa
- Basch, C. E., 1987. Focus Group Interview: An underutilised research technique for improving theory and practice in health education. *Health Education Quarterly*, Vol. 14, pp.411 - 448.
- Baum, F.E. & Ziersch, A.M., 2003. Social Capital. *Journal of Epidemiology and Health* Vol57, pp.320-323
- BBC News., 2004. South Africa faces grain shortage: At least 15 million South Africans face food shortages after a severe drought: Available at: <<http://news.bbc.co.uk/1/hi/world/africa/3397395.stm>> [Accessed 20 May 2009]
- BBC News, 2011. Horn of Africa sees 'worst drought in 60 years'. Available at: <<http://www.bbc.co.uk/news/world-africa-13944550>>. Accessed 26 July 2011.
- Benson, C. and Clay, E., 1994. *The impact of drought on sub-Saharan economies: a primary examination*, Working Paper 77, Overseas Development Institute.
- Beyene, F., 2003. Current range condition in southern Ethiopia in relation to traditional management strategies. The perceptions of Borana pastoralists. Tropical Grasslands. *Department of Animal Production and Rangeland Management*, Volume 37, pp. 53–59.
- Blaikie, P., Cannon, T., Davis, I., and Wisner, B., 1994. *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London: Routledge.
- Bolig, M., 2006. *Studies in Human Ecology and Adaptation. Risk Management in a Hazardous Environment: A Comparative Study of Two Pastoral Societies*. Springer Science.
- Bond, P., 2002. *Unsustainable South Africa*. London: Merlin Press.
- Bouma, D. G., 1996. *The Research Process*. 3rd ed. Oxford: Oxford University Press.
- Bowling, A., 1997. *Research Methods in Health: Investigating Health and Health Services*. Buckingham: Open University Press.
- Brien, K and Vogel, C., 1997. *Climate Variability. The use of Seasonal Climate Forecasts in Southern Africa*. England: Ashgate Publishing Limited.
- Briggs, J. 2005. The use of indigenous knowledge in development: problems and challenges. *Progress in Development Studies* Vol.5, pp. 99–114
- Bruins, H. and Lithwick, H., 1998. *The Arid Frontier. Interactive Management and Development*. The Netherlands: Kluwer Academic Publishers.

- Bruwer, J.J., 1990. Drought Policy in the Republic of South Africa, in Du Pisani, A.L. (ed.), Proceedings of the SARCCUS Workshop on Drought, June, 1989, Pretoria, 23-28.
- Bureau of Meteorology, 2004. Climate Variability and Change hydrological impacts. International Commission on Water Resources Systems. Available at. <<http://books.google.co.za/books?id>> [Accessed 14 May 2008]
- Burns. R., 2000. *Introduction to Research Methods*. California: Sage Publications.
- Burton et al, 2008. *Climate Change and Adaptation*. London: Earthscan Press.
- Busha, H. C. and Harter, P. S., 1980. *Research Methods in Librarianship Techniques and Interpretation*. London: Academic Press.
- Buyis, L., 2000. In the wake of the flood waters'. *Land and Rural Digest*, Vol.13, pp.10-15.
- Carney, D., 1998. Sustainable Rural Livelihoods: What Contribution Can We Make?. London. Department for International Development. Available at <[http://www.librarything.com/wiki/images/a/aa/Ashley Sustainable livelihood lessons learned.pdf](http://www.librarything.com/wiki/images/a/aa/Ashley_Sustainable_livelihood_lessons_learned.pdf)> [Accessed 24 July 2008]
- Catterall, M., Maclaran, P., 1997. Focus group data and qualitative analysis programs: Coding the moving picture as well as the snapshots. *Sociological Research Online*, 2(1). Available at: <<http://www.socresonline.org.uk/socresonline/2/1/6.html>> [Accessed 21 June 2008]
- Census, .2001. Statistics SA Census 2001. Department of Provincial and Local government. Available at: <http://www.southafrica.info/about/government/govlocal.htm>. Accessed 13 November 2011.
- Chambers, R., 1983. *Rural Development. Putting the Last First*. London: Longman.
- Chen, M. A., 1991. *Coping with Seasonality and Drought*. India: Sage Publications India Pvt Ltd.
- Clark, M. J., 1998. *Nursing in the community*. Stamford: Appleton and Lange.
- Clegg, . 1979. Ukubuyisa Isidumbu - Bringing Back the Body": An Examination into the Ideology of Vengeance in the Msinga and Mpofana Rural Locations. University of Witwatersrand, Johannesburg, African Studies Seminar, 1979.
- Coleman, J. S., 1990. *Foundations of Social Theory*. Cambridge, MA, Harvard University Press. In Johnson, 2002. The sustainable livelihoods approach: input paper for the integrated training course of north-south aeschried, Switzerland 9. - 20. September 2002

- Coleman, S., 1988. Social Capital in the Creation of Human Capital. *American Journal of Sociology*, Vol.94, pp.95-120.
- Consultative Forum on Drought, 1992. Drought Report in South Africa. Johannesburg 1992
- Cox, E., Caldwell, P., 2000. Making Policy Social. In: Winter, I. ed. 2004. Social Capital and Public Policy in Australia, Australian Institute of Family Studies, *Commonwealth of Australia*, pp. 43-73.
- Creswell. J., 2009. *Research design: qualitative, quantitative, and mixed methods approaches*. London: Sage Publications.
- Cuny, F.C., 1985. *Disasters and Development*. New York: Oxford University Press.
- Dartell, L. and Torr, L., 2003. Maximising Comparative Advantage in a Partnership: A sanitation Project in Umkhanyakude District, KwaZulu-Natal', *Africanus Vol. 33* (2), p. 6-17
- Davies, S. 2000. Adaptable Livelihoods. *Coping with food Insecurity in the Malian Sahel*. London: Palgrave Macmillan
- De Haan, M., 1998. *The health of Southern Africa*. Capetown: Juta & Co, Ltd.
- Denise, F.P. and Benadette, P.H., 1987. *Nursing Research, Principles and methods*. Philadelphia: J.B. Lippincott Company.
- Denzin, N. K., 1978. *The research act: A theoretical introduction to sociological Methods*. New York: Praeger.
- Denzin, N.K., Lincoln, Y.S., 2005. *The Sage Handbook of Qualitative Research* (3rd Ed). United Kingdom: Sage Publications.
- Department of Science and Technology., 2004. Indigenous Knowledge Systems. Pretoria: Government Printer.
- Department of Agriculture and Forestry., 1941. National Provision against Drought. Reprinted from Farming in South Africa, June and July, 1941. *Bulletin No. 235*
- Department of Constitutional Development, 1998. White Paper on Disaster Management. Available at.
<http://www.policy.org.za/govdocs/white_papers/disasters.htm>
- Department of International Development, 1999. Sustainable Livelihoods Guidance Sheets. The World Bank. Washington DC.
- De Satge, R., Holloway, A., Von Kotze, A., Nchabeleng., 2002. Learning about livelihoods: Insights from Southern Africa. Cape Town: Periperi Oxfam.

- Devereux, S., Naerra, T., 1996. Drought and Survival in Rural Namibia. *Journal of Southern Africa*, Vol. 22, pp. 421-440
- Devereux, S., and Hoddinott, J., 1993. Fieldwork in Developing countries. [e-book] available through: Lynne Rienner < www.google.com > [Accessed June 2007]
- Disaster management Act., 2002. *Government Gazette* Vol. 451 Cape Town 15 January 2003 No. 2425. Republic of South Africa. Cape Town
- Dixon, A., 2005. Wetland sustainability and the evolution of indigenous knowledge in Ethiopia. *The Geographical Journal*, Vol.171, pp. 306–323.
- Drought Information Bulletin, 2004. Disaster Relief Emergency Fund (DREF): Available at: <<http://www.sahims.net/doclibrary/2004/02>>[Accessed 02 February 2007]
- Dube, T., Jury, M., 2002. Meteorological structure of the 1992/93 Drought over eastern South Africa. *Geographical Journal of Southern Africa*, Vol. 84, pp. 170-181
- Edley. D. M., 1994. *The years of red dust: aspects of the effects of the great depression on Natal, 1929-1933*. PhD. University of Natal.
- Ellis, F., 2000. *Rural livelihoods and diversity in developing countries*. Oxford: Oxford University Press
- Figueroa, M.E. Kincaid, L. Rani, M. and Lewis, G., 2002 *Communication for Social change: An integrated model for measuring the process and its outcomes*. New York: Rockefeller Foundation.
- Finan, F., 1999. *Measuring the Poverty Reduction Potential of Land in Rural Mexico*. In, Hilhorst, D, 2004. *The real world of NGOs: discourses, diversity and development*. London: Zed Books
- Financial and Fiscal Commission. 2002. Assessment of the Disaster Management Bill. Available at. <www.ffc.co.za/docs/submissions/disaster.asp>.
- Fond Alimentaire Mondial., 2000. Au Kenya, la sécheresse déclenche une crise alimentaire. Un raport special de FAO. Kenya. Disponible à < <http://www.fao.org/nouvelle/global/GW0013-f.htm> > [accessed 7 September 2009]
- Freeman, M., 1992. Negotiating the future of Traditional Healers in South Africa. Differences and Difficulties. *Critical Health*, Vol. 40, pp.64-69
- Fukuyama, F., 1999. *Social Capital and Civil Society*, Paper prepared for delivery at the *IMF Conference on Second Generation Reforms*, November 8-9, 1999, IMF Institute and the Fiscal Affairs Department, Washington, D.C.

- Gaventa, J., 1996. *Towards participatory local governance*. In Johnson., 2002. *The sustainable livelihoods approach: input paper for the integrated training course of north-south aeschiried*, Switzerland 9. - 20. September 2002
- Geertz, C., 1973. *Thick Description: Toward an Interpretive Theory of Culture*. Selected Essays. New York: Basic Books.
- Green E.C., 1994. *AIDS and STD in Africa. Bridging the Gap between Traditional Healing and Modern Medicine*. University of Natal Press, Pietermaritzburg.
- Grenier, L., 1998. *Working with indigenous knowledge: a Guide for Researchers*. Ottawa: Ottawa University.
- Guy, J., 1977. *Ecological factors in the rise of Shaka and the Zulu kingdom*. PhD Thesis, University of Natal
- Hamersley, M. and Atkinson, P., 1983. *Ethnography Principles in Practice*. London: Tavistock Publications Ltd.
- HIV/AIDS Plan, 2003. Umzinyathi IDP Review 2003: HIV/AIDS Plan. Also available at: < http://devplan.kzntl.gov.za/idp_reviewed/> [Accessed 12 May 2008]
- Hilhorst, D, 2004. *The real world of NGOs: discourses, diversity and development*. London: Zed Books
- Holloway, A and Von Kotze, A., 1996. *Reducing Risk: Participatory learning Activities for Disaster Mitigation in Southern Africa*. Internal Federation of the Red Cross and Red Crescent Societies. Cape Town: Oxfam Publishers.
- Holloway, A., Von Kotze, A., 1999. *Living With Drought. Drought Mitigation for Sustainable Livelihoods*. Intermediate Technology Publications. Cape Town: David Philip Publishers.
- Holloway, A., 2003. Linking Poverty Reduction and Disaster Risk Management. African Security Review. Volume 12, Number 1, 2003.
- Hoppers, O. C., 1997. Public Policy Dialogue: It's Role in the Policy Process. Johannesburg. Centre for Education Policy Development.
- Hoppers, O. C., 2002. *Indigenous Knowledge and the Integration of Knowledge Systems. Towards a Philosophy of Articulation*. London: New Africa Books (Pty) Ltd.
- Integrated Development Plan Review, 2008/2009. Msinga Local Municipality. Draft document. Available at < http://devplan.kzntl.gov.za/idp_reviewed_2008_9/IDPS/KZ244/Adopted/MSINGA%20NEW%20IDP%20200809.PDF [Accessed 17 December 2010]
- International Institute of Rural Reconstruction, 1996. Recording and Using Indigenous knowledge: New York: United Nations.

International Community of the Red Cross, 2002. Regional livestock study in the Great Horn of Africa. Available at <http://www.icrc.org/eng/resources/documents/misc/regional-livestock-study-great-horn-africa.htm>). Accessed 03 December 2010

International Decade for Natural Disaster Reduction, 1998. Coping with natural disasters: Available online: <http://www.worldcat.org/title/coping-with-naturadisasters-the-international-decade-for-natural-disaster-reduction/oclc/021073999>. <Accessed on 17 May 2008>.

Institute of Natural Resources, 2007. Status Quo of the Agricultural sectors Msinga Local Municipality. Prepared for Department of Economic Development, Local Economic Development Unit. Institute of Natural Resources, South Africa.

Integrated Regional Information Network, 2007. Southern Africa: Vouchers to help drought-hit farmers: Available at: <http://www.alertnet.org/thenews/newsdesk/IRIN/aeef63cc4826b273be589e3dde40f2c3.htm>. [Accessed 14 May 2008].

Jenkins, C., 2006. Declare drought-hit region a disaster area in *The Mercury* 2006, p.3.

Johnson., 2002. *The sustainable livelihoods approach: input paper for the integrated training course of north-south aeschiried*, Switzerland 9. - 20. September 2002.

Kamara. J., 2007. Indigenous knowledge in natural disaster reduction in Africa. Environmental knowledge for change. UNEP
<http://www.gridao/publications/et/ep3/page/2608.aspx> [Accessed 22 March 2009]

Khan, H., 1991. Competing construction of calamity: The April 1991 Bangladesh Cyclone. *Population an Environment*, Vol. 16, pp. 445-471. Available at <<https://springerlink3.metapress.com/content/p51251785160x484/resource-secured/?target=fulltext.pdf&sid=kj0iv5ryiyaadf55xtfq2z55&sh=www.springerlink.com>> [Accessed 08 August 2009]

Khandlhela, M., 2002. *Weathering the storm: evaluating the impacts of the 2000 floods on two poor communities of the Northern Province*. Masters. University of Natal.

Khor, M., 2002. *Intellectual Property, Biodiversity and Sustainable Development. Resolving the Difficult Issues*. London: Zed Books.

Kitzinger, J., 1994. The methodology of focus groups: the importance of interaction between research participants. *Sociology of Health and Illness* Vol. 16, pp. 103-121.

Kull, C, A., 2004. *Isle of Fire. The Political Ecology of Landscape Burning in Madagascar* .Chicago: University of Chicago Press.

- Kumar, R., 2004. *Analysis of qualitative and quantitative research*. London: Sage Publication.
- Kumlin, S., Rothstein, B., 2005. Making and Breaking Social Capital. The impact of Welfare-State Institutions'. In: SAGE (pub.) (2005): *Comparative Political Studies*. Vol.38, pp.339-395.
- KwaZulu-Natal Drought Report, 2004. *Report on the drought situation in KwaZulu-Natal*. Pietermaritzburg February, 2004. Department of Agriculture.
- Langill, S., 1999. Indigenous knowledge: Resource kit for sustainable development researchers in dryland Africa. Ottawa. International Development Research Centre.
- Lavell, A., 1994. *Preventing and Mitigation of Disasters in Central America*. New York: Wiley and Sons.
- Light, P., 2005. Lessons learned: Hurricane Katrina and Wilma Hit U.S. Gulf coastal states. Boston Globe.
- Makali, S, Wiseman, U, Ambebje, P, Kitene, B, and Speranza, CI, 2010. Indigenous knowledge related to climate variability and change: insights from droughts in semi-arid areas of former Makueni District, Kenya. *Climatic Change* (2010) 100:295–315
- Marcus, T., 1994. Rural crisis in Southern Africa: Agriculture, migration and poverty in Venter, M. (Ed.) (1994) *Prospects for Progress; Critical Choices for Southern Africa*. Cape Town; Maskew Miller Longman.
- Mathbor, M., 2007. Enhancement of community preparedness for natural disasters: The role of social work in building social capital for sustainable disaster relief and management. Sage.
- Maurice Webb Race Relations Unit, 2007. Msinga profile 2007. University of KwaZulu-Natal.
- May, M., 2001. Poverty, Shocks and School Disruption Episodes among Adolescents in South Africa. CSDS Working Paper No 35
- McClure, G. 1989. *Indigenous knowledge systems: Implication for Agriculture and International Development*. Iowa: State University.
- McLafferty, I., 2004. Focus group interviews as a data collection strategy. *Journal of Advanced Nursing* Vol., 48, pp. 187-194.
- McMillan, H.J. Wergin, F.J., 2002. *Understanding and Evaluating Educational Research*. 2nd Ed. New Jersey: Pearson Education.
- Mekonnen, M. 2006. Drought, Famine, and Conflict: Case from the Horn of Africa. Nairobi. University of Nairobi

- Miller, E., 1999. *What perceptions of cross-racial adoption reveal about notions of race, culture and identity: A Qualitative Study of Young White South Africans*. Masters. University of Natal.
- Ministry for Provincial Affairs and Local Government. 2002. Disaster Management Bill. Available at: www.gov.za/gazette/bills/2002/b21a-02.pdf. [Accessed 23 May 2008]
- Modi, A. T., 2003. Development debate and practice. What do substance farmers know about indigenous crops and organic farming? Preliminary experience in KwaZulu-Natal. *Development Southern Africa* Vol. 20, pp.23-57
- Mortimore, M., 1989. *Adapting to drought: farmers, famines and desertification in West Africa*. Cambridge: Cambridge University Press.
- Moser. C. O., 1996. Confronting Crisis- A comparative Study of Household responses to poverty and vulnerability in four poor households. Environmentally Sustainable Development Studies and Monograph Series No.8. Washington DC: World Bank.
- Msinga Integrated Development Plan, 2004/2005. Msinga Local Municipality
- Municipal Systems Act, 2000 (Act No. 32 of 2000). Available online at: http://www.acts.co.za/municipal_systems_act_2000/index.htm. Accessed June 2009
- Mwaura, P., 2008. *Indigenous knowledge in disaster management in Africa*. Drought Monitoring Centre, Nairobi, Kenya.
- Narayan, D., 1999. *Bonding and bridging: Social Capital and Poverty*. Policy Research Working Paper 2167. World Bank, Poverty Reduction and Economic Management Network, Washington, D.C.
- National Consultative Forum on Drought, 1993. Indicators for poverty and drought. Thinking about the components of a food security monitoring system for South Africa, Johannesburg.
- Nchabeleng, L., 1999. Introducing the Livelihoods Framework, Learning about Livelihoods: Insights from southern Africa. Periperi Publications, Oxfam GB. pp 58-71
- Newitt, M.D.D., 1988. Drought in Mozambique 1823–1831. *Journal of Southern African Studies*; vol. 15, pp. 15–35
- Norton, A., 1997. *Experience and perceptions of poverty in South Africa. Synthesis Report*. Durban: Policy and Praxis Publishing.
- Norton, N. and Foster, M., 2001. *The Potential of Using Sustainable Livelihoods Approaches in Poverty Reduction Strategy Papers*: Centre for Aid and Public

Expenditure. July 2001 Overseas Development Institute. Westminster Bridge. London UK.

Ntuli, P., 2002. Indigenous knowledge Systems and the African Renaissance. Laying a foundation for creation of counter-hegemonic discourses. In Hoppers, 2002, *Indigenous Knowledge and the Integration of Knowledge Systems. Towards a Philosophy of Articulation*. Cape Town: New Africa Books (Pty) Ltd

Oelofse, C. Dodson, B., 1997. Community, place and transformation: A perceptual analysis of resident's responses to an informal settlement in Hout Bay, South Africa'. *Geoforum* Vol. 28, pp. 91-100.

Okumu, J., 2002. *The African Renaissance. History, significance and strategy*. Asmara, Eritrea. Africa World Press.

Opoku, S. A., 2005. *The need for indigenous knowledge in environmental impact assessment: The case of Ghana*. New York: Edwin Mellen Press.

Orindi, V., Nyong, A. and Herrero, A., 2008. Pastoral Livelihood Adaptation to Drought and Institutional Interventions in Kenya. Nairobi, Republic of Kenya, June 2008. Human Development Report 2008.

Overing, J., 1987. Translation as a creative process: The power of the name. In Temple, B., & Edwards, R., 2002. Interpreters/Translators and cross-language research: Reflexivity and border crossings. *International Journal of Qualitative Methods*, 1(2): Article 1. Available at < <http://www.ualberta.ca/~ijqm.html>> [accessed 03 April 2009]

Pennesi, K. 2007. the Predicament of Prediction: Rain Prophets and Meteorologists in Northeast Brazil. Ph.D. University of Arizona. Available at <<http://anthropology.uwo.ca/faculty/pennesi/publications.html>> [Accessed 27 August 2010).

Polkinghorne, D.E., 2005. Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology* Vol. 52, pp. 137-145.

Potteir, J., Bicker, A., and Sillitoe, P., 2003. *Negotiating local knowledge: power and identity in development*. London: Pluto Press.

Putnam, R. D., Feldstein, L., 2003. Better Together: Restoring the American Community. New York: Simon & Schuster.

Putnam, R. D. 1993. The prosperous Community: Social Capital and Public life. *The American Prospect*. Vol. 4, p.167.

Rahmato, D., 2003. Integrating Environmental Security Concerns in Development Policy, Addis Ababa, Ethiopia.

Rahmato, D., 1991. *Famine and survival strategies: a case study from northeast Ethiopia*. Holland. Nordiska Afrikainstitutet.

- Richard, P. 1993. Cultivation: knowledge or performance? In Hobart, M. (ed). *An Anthropological Critique of Development: the Growth of Ignorance*. London: Routledge.
- Republic of South Africa. Traditional Health Practitioners Act, 2007. *Government Gazette* Jan 10, 2008. Available at: <http://us-cdn.creamermedia.co.za> (accessed November 30, 2010).
- Rouse, J., 1999. Global Dissemination of Indigenous Knowledge, World Bank Publication. In Miruka et al, 2009. Indigenous knowledge management transfer systems across generations in Zimbabwe. University of Witwatersrand, South Africa.
- Rwelamira, J.K., 1997. Background Paper on the Economic and Financial Implication of Drought to the State and to the Economy of South Africa. Ministry of Agriculture, Pretoria South Africa.
- Sampath, P., 1999. Vulnerability Reduction at Community Level-the New Global Paradigm, John F. Kennedy School of Government, Harvard University, USA, Paper presented at the International Conference on Disaster Management Cooperative Networking in South Asia, 28th to 30th November 1999, New Delhi.
- Sanderson, L., 2000. Livelihoods and Disaster Mitigation: Cities, Disasters and Livelihoods. *Environmental and Urbanization*, Vol.12, pp.39-103.
- Save the Children. 2000. Indigenous knowledge and coping strategies. UK. Available at <<http://www.bvsde.paho.org/bvsacd/cd46/disaster/cap9.pdf>>. [Accessed May 2007]
- Scoones, I., 1998. Coping with drought – responses of herders and livestock in contrasting savanna environments in southern Zimbabwe'. *Human Ecology* Vol. 20, pp.293–314.
- Seaman, C.H.C., 1987. *Research methods: Principles, Practice, and Theory for Nursing*. California: Appleton and Lange.
- Seepe, S., 2001. Indigenous knowledge Systems Can Benefit Everyone. In Ngubane, T.P. 2006. *Development Deficiency in the Midst of Abundance: Indigenous knowledge and Development in the Communities of Mpembeni and Mdletsheni Abutting Hluhluwe-Imfolozi Park*. Master's thesis, University of KwaZulu-Natal.
- Sen, A., 1999. *Theory and Practice of Development*. In India's Economic Reforms and Development. Essays for Manmohan Singh, edited by Isher Judge Ahluwalia and I.M.D Little. New Delhi: Oxford University Press.
- Sen, A., 1981. *Poverty and famines: an essay on entitlement and deprivation*. London: Clarendon Press.

- Siegel, P.B. and Alwang J., 1999. An asset Based Approach to Social Risk Management: A conceptual Framework. Social Protection Unit and Human Development Network Discussion Paper No8826, The World Bank, Washington, D.C. Available online at: <www.worldbank.org/sp> [Accessed 06 November 2008]
- Sillitoe, P., Dixon, P., and Barr, J., 2002. *Indigenous knowledge Inquiries: A Methodologies Manual for Development*. United Kingdom. Schumacher Centre for Technology and Development.
- Simkins, C. and Clarke, D., 1978. *Structural Unemployment in Southern Africa*. Pietermaritzburg: University of Natal Press.
- Slade, C., 1997. *Form and Style, Research Papers, Reports, Theses*. 10th Ed. Boston: Houghton Mifflin Co.
- Snowden, L. R., 2005. Racial Cultural and Ethnic, Disparities in *Health: Toward theory and research at community's psychology*. 35 (1/2):1-8.
- Solomon, H., 1996. Strategic Perspectives on Illegal Immigration into South Africa. *Human Security Project. African Security Vol. 5*, pp.83-110
- South Africa. *Bill of Rights*. 1996. Available online at: <<http://www.gov.za/constitution/1996/96cons2.htm#24>>. [Accessed 21 February 2008].
- South African Weather Services, 2008. KwaZulu-Natal Station. Forwarded via email by the South African Weather Services: Durban offices, June 2008
- Stopforth, P., 1990. Green Paper on Disaster Management. In United Nations, 1999. A/54/132/Add.1-E/1999/80/Add.1. Final Report of the Scientific and Technical Committee of the International Decade for Natural Disaster Reduction. Available online at: <www.un.org/documents/ecosoc/docs/1999/e1999-80add1> [Accessed 17 May 2008].
- Taylor, A. et al, 2004. The Getting of Access: The Trials and Tribulations of the novice Researcher .Available at <<http://education.curtin.edu.au/iier14/2004conts.html>> (accessed 13 November 2009)
- Temple, B., and Edwards, R., 2002. Interpreters/Translators and cross-language research: Reflexivity and border crossings. *International Journal of Qualitative Methods*, 1(2):Article1 <http://www.ualberta.ca/~ijqm/backissues/1_2/pdf/temple.pdf> [Accessed 16 June 2009]
- The National Research Council. 1991. Indigenous knowledge at the interface with other Systems of Knowledge. Unpublished Report 5 (3): 18-45.

- The presidency, 2003. Disaster Management Act. *Government Gazette* No. 24252 of 15 January 2003. Available online at: <<http://acds.co.za/dma.pdf>>. [Accessed 08 January 2008]
- The World Bank, 1998. The Initiative on Defining, Monitoring and Measuring Social Capital. Overview and Program Description, Washington, World Bank, Social Development Department. Washington DC. World Bank
- The World Development Report, 2001. *Attacking poverty*: Published for the World Bank. Oxford: Oxford University Press.
- The World Development Report, 2000/2001. *Attacking poverty*. New York. Oxford University Press.
- Terre Blanche, M., Durrheim, K., and Painter, D., 2006. *Research in practice: Applied methods for the Social Sciences*. South Africa: University of Cape Town Press.
- Tsai, JH, Choe, H, Chen Lim, J, Acorda, E., Chan, N, Taylor, M and Ping Tu, S., 2004. Developing culturally competent health knowledge: Issues of data analysis of cross-cultural, cross-language qualitative research. *International Journal of Qualitative Methods*, 3(4): Article 2. Available at <http://www.ualberta.ca/~iiqm/backissues/3_4/pdf/tsai.pdf> [Accessed 16 June 2009]
- Tyson, P.D. and Whyte, 2000. *The Weather and Climate of Southern Africa*. 2nd Ed. Cape Town: Oxford University Press of Southern Africa.
- Ulin, P.R., Robinson, T.R., Tolley, E.T., & McNeill, E.T., 2002. Qualitative methods: A field guide for applied research in sexual and reproductive health. Family Health International: North Carolina.
- Ullah, J. I., 2004. *The Economic and Social Impact of Drought on the Rural Poor: The case of Pakistan*. Masters. University of Birmingham.
- UMzinyathi District Health Report 2003. Available online at: http://devplan.kzntl.gov.za/idp_reviewed/IDPS/DC24/1.0_UD_Fr_page_perspective_rep.pdf. Accessed, April 2009.
- United Nations, 1997. Agenda 21, South Africa Country Profile: Land. Available online at: <http://www.un.org/esa/agenda21/natinfo/countr/safrica/land.pdf>
- United Nations Development Programme, 2005. *Local and Indigenous Knowledge of the Natural World: An Overview of Programmes and Projects*. International Workshop on Traditional Knowledge. Panama City, 21-23 September 2005. Panama.
- United Nations. 1992. *Report of the United Nations Conference on Environment and Development*, Rio de Janeiro, 3- 14 June 1992. Geneva.

- United Nations, 1999. A/54/132/Add.1-E/1999/80/Add.1. Final Report of the Scientific and Technical Committee of the International Decade for Natural Disaster Reduction. Available online at: www.un.org/documents/ecosoc/docs/1999/e1999-80add1 [Accessed 17 May 2008].
- United Nations International Strategy for Disaster Reduction, 2002. Living with Risk: focusing on Disaster Risk Reduction. Available at :[http:// www.unisdr.org](http://www.unisdr.org) [Accessed 17 May 2008]
- USDA (United States Department of Agriculture), 2009. 2007 Census of Agriculture United States Summary and State Data. *USDA National Agricultural Statistics Service*, Vol. 1, p. 739
- Varley, A., 1994. *Disasters, Development and Environment*. New York: Wiley and Sons.
- Vogel, C., and Smith, J., 2002. The politics of scarcity: Conceptualising the current food security crisis in southern Africa' South African. *Journal of Science*, Vol. 98, pp.64-78.
- Vogel, C.,1998. *Vulnerability and global environmental change*. Paper presented at the regional Workshop on Risk Reduction in Southern Africa, Disaster Mitigation for Sustainable Livelihoods Projects. University of Western Cape, Cape Town, October 1998.
- Von Kotze, A., 2002. Producing Knowledge for Living. *Studies in Continuing Education*, Vol. 24,pp.45-76
- Von Kotze, A., 1999. *Mainstream Risk Reduction: Challenges for education and training*. Paper presented for conference on "Risk, Sustainable Development and Disasters: Perspective from the South". Harare, Zimbabwe, February 1999.
- Warren, D.M., 1992. *Indigenous knowledge, biodiversity conservation and development*. Keynote Address at International Conference on Conservation of Biodiversity in Africa: Local initiatives and institutional roles. Nairobi, Kenya, 30 August-3 September.
- Whitmore, D.A., 2000. Water Science and Technology Library. *Drought Management and Farmland*. The Netherlands: Kluwer Academic Publishers
- Wilhite, D.A., 2005. *Drought and Water Crises. Science, Technology, and Management Issues*. CRC Press Taylor & Francis Group.
- Wilhite, D.A.,1982. Measuring drought severity and assessing impact. Proceedings of the International symposium on Hydrometeorology; pp, 333-35. *American Water Resources Association*. Bethesda, Maryland, USA.
- Winchester, P., 1992. *Power, choice and vulnerability. A case study in disaster management in South India*. London. James & James Science Publishers.

- Wisner, B., 1997. *A Tale of two cities: Urban Hazard Mitigation at the end of the 20th Century*, Keynote Address in Public Policy Issues in Natural Disaster Reduction, White House Conference Centre, Washington D.C. 21 January.
- Wisner, B., 1993. Disaster Vulnerability: Scale, Power and Daily Life. *Geojournal* Vol.30, No.2, pp.127-144.
- Wisner, B., 2000. Small Floods: A hidden Problem. Unpublished mimeograph available at: <<http://www.anglia.ac.uk/geography/radix/latest.htm>> [Accessed 09 April 2008]
- Wisner, B., 2001. *Vulnerability in Disaster Theory and Practice: From Soup to Taxonomy, then to Analysis and Finally Tool*. International World Conference on Disaster Studies, Wagenigen University and Research Centre, 29/30 June 2001
- Woodcock, M., 1998. Social capital and economic development: toward a theoretical synthesis and policy framework', *Theory and Society* Vol. 27, pp. 151-208.
- Woodcock, M. and Narayan, D., 2000. 'Social Capital: Implications for Development Theory', *The World Bank Research Observer* Vol., 15, pp. 225-251.

Appendix 1

Demographic Information

Gender	Male	Female
What is your community /Village		
Mabaso		
Mbovu		
What is your age?		
19-29		
30-39		
40-49		
50-59		
60-69		
70-79		
80-90		
What is your level of education?		
Primary		
Secondary		
Tertiary		
Never		
What is your membership?		
Church		
NGO		
Club		
Other		
What is your Source of Income?		
Pension		
Livestock		
Field Harvest		
Wages		
Informal work		
Child Support Grant		
Relatives		
Friends		
What is your Employment Status?		
Employed		
Unemployed		
Self Employed		
Do you have access to land?		
Yes		
No		
Do you have access to water for irrigation?		
Yes		

No		
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Appendix 2

INTERVIEW SCHEDULE FOR GROUP DISCUSSION

Theme A: Perception and experience on Drought

1. How serious is drought in your locality?
2. When did you last experience drought in your locality?
3. How often droughts occur in your locality?

Theme B: Description of drought and losses

1. Have you suffered a loss of live stock or crops or anything else as result of drought?
2. Describe the loss suffered?
3. How your life changed as result of the losses?

Theme C: Causes of drought

Do you think that the following factors can cause drought? Please fill free to comment.

1. Over cultivation
2. Over grazing
3. Cutting down trees
4. Ancestors

Feel free to add anything that you believe to have causing drought

Theme D: Predictions of droughts

1. Do you pay attention to the following indicator to predict drought? Please give more details and feel free to comment.

Behavior of animal

Migration of birds

Presence of foreign insects

Movements of winds

Vegetation
Stars and moon

Feel free to add anything that you believe to indicate drought occurrence.

2. Do you use the information obtained from these indicators to make decisions and prepare against drought? If yes, how?

Theme F: Drought preparedness/prevention strategies

1. Do you use one or more of these strategies to prepare against drought? Please give more details and feel free to comment.

Building food stores
Water harvesting
Storing fodder
Savings
Migration to other areas
Growing drought resistant crops
Reducing the size of livestock
Family member search for work

Doing nothing

Feel free to add any other measures you used to prepare against drought?

Theme G

Do you use one or more of these strategies to cope with drought effects? Please give more details and feel free to comment.

Pray to ancestors
Arrangements (grazing) with distant communities
Mixing crops

Diversify income
Selling Livestock
Taking children out of school
Selling belongings
Borrow money
Spending previous savings
Borrowed foodstuffs
Migrated to other area
Dependent on relatives
Dependent on government aid & donation

Feel free to add any other measures you used to cope with drought effects?

Theme H

How do you feel about the effectiveness of measures used to predicts, prepare and mitigate drought?

Theme I

What did you do to recover from drought?

Theme J

Are you and the people in your locality keen to develop drought management programme? If yes, how this can be done?

Appendix 3

INTERVIEW SCHEDULE FOR COMMUNITY LEADERS

1. How would you describe the seriousness of drought in your locality?
2. What do you think to be the main causes of drought in your locality?
3. Do you know when drought is about to occur in your locality? If yes, how do you know this?
4. What do you do to prevent drought from affecting the livestock and crops in your locality?
5. When drought occurs what you and the people do to cope and mitigate drought effects?
6. When drought occurs, do you call for assistance from the government or other traditional leaders or from any organizations? If yes, please elaborate on the assistance received?
7. How would you describe the effectiveness of assistance received in mitigating drought effects on the communities?
8. What do you feel about communities' responses to drought?
9. Are you and the people keen to develop drought management programme? If yes, how this can be done.

Appendix 4

Interviews with Public servants

The aim of this interview is to examine the South African government's policy and Acts and its effectiveness in mitigating and preventing the effects of drought on the communities of Msinga. There are seven questions that I would like to ask with regard to disaster management policy and its applicability to drought Msinga. I will read out Disaster Management Policy and Acts and your role is to reflect on how these are applied to drought in Msinga.

- a) What position do you hold?.._____
- b) How long have you been in this position?. _____

1.Policy Commitment

What are your views on the following statement and its applicability to drought in Msinga?

The IDNDR stresses that every government has the sovereign responsibility to protect its people, infrastructure and national, social or economic assets against natural hazards (United Nations International Strategy for Disaster Reduction, 2002: 17). In South Africa and in terms of the new Disaster Management Act, 57 of 2002, each sphere of government has been given specific responsibilities with strong emphasis on the elements of prevention, preparedness and mitigation and risk-reduction (Disaster Management Act, 57 of 2002). Each municipality is also required to compile a disaster management plan which, in terms of section 26(g) of the Municipal Systems Act, 32 of 2000, must form part of its overall Integrated Development Plan (Municipal Systems Act, 32 of 2000). National Government will, in due course, issue the necessary guidelines by means of a national framework as well as Regulations in terms of the Act, to provinces and municipalities (Municipal Systems Act, 32 of 2000).

2.Hazard, vulnerability and risk assessment

What are your views on the following statement and its applicability to drought in Msinga?

The UN IDNDR Scientific and Technical Committee suggested that local and national authorities need to integrate hazard assessment more fully into their overall development plans (United Nations, 1999: 6). Implementation of Local Agenda 21 initiatives should also include hazard assessments (United Nations International Strategy for Disaster Reduction, 2002). These approaches, which should be rooted in financial subsidies from either the national or provincial government, involve delegating decisions and implementation tasks to the most appropriate level, beginning at the local level with individuals and households (United Nations, 1999: 6). This suggestion stems from the notion that poverty places people in precarious situations and unsustainable means of survival that can create a range of hazards that cause disasters, or at least aggravate what may have otherwise been minor calamities (Davis, 1999, cited In United Nations, 1999: 87). As such, the suggestion was that individual households need to become involved in the hazard assessment process. The government of South Africa has provided an enabling environment for an effective disaster risk reduction system through legislation that is consistent with UN ideals.

3.National committees

What are your views on the following statement and its applicability to drought in Msinga?

In General Assembly resolution 44/236, in which the IDNDR was founded, member states, including South Africa, were asked to formulate national disaster mitigation programs; establish national committees or focal points; mobilize support; increase public awareness; pay due attention to health care and related forms of essential social and economic infrastructure; and improve availability of emergency supplies. The formation of multisectoral national committees or focal points was considered to be best means for realizing these goals at the local level (United Nations, 1999). According to the committee, most countries adopted the progressive disaster risk reduction principles advocated during the IDNDR, and only a few countries

continued to focus on the more limited concepts of emergency response (United Nations, 1999:9).

As it stands, the South African government has adopted the UN resolution and adopted the proactive approach. Analyzing disaster management administrative structures, the South African government has a well-established national committee in theory. These developments also suggest that the South African government is committed to disaster risk reduction and is attempting to build disaster risk reduction capacity in provinces, metropolitan areas, districts and local municipalities.

4. Disaster early Warning

What are your views on the following statement and its applicability to drought in Msinga?

An effective early disaster warning includes an accurate warning to the public from a variety of sources, such as Radio, newspapers, TV, and community meetings, including a clear and informed statement of instructions for effective action to minimize the consequences of the hazard, and a timeous disaster declaration, creating quick access to provincial and national resources (United Nations, 1999c, p.8; Health Systems Trust, 2000). These co-ordinate activities are critical for early warning to become an essential element of any comprehensive disaster prevention strategy (United Nations, 1999)

5. Disaster Relief and assistance

What is your view on the following statement and its applicability to drought in Msinga?

An important supposition in many disaster management plans is the provision of food supplies and emergency supplies. In any disaster the fulfillment of basic needs is a matter of priority. The government report indicates that food and supplies has been provided to rural communities in northern- KwaZulu-Natal, which include UMzinyathi formed by Msinga (Drought Information Bulletin no.1/2004).

6. Initiatives of city officials and of local level organizations

What is your view on the following statement and its applicability to drought in Msinga?

The scientific and technical committee reported that once local authorities became aware of the purpose of the IDNDR, they demonstrated an increasing willingness to participate in the UN Decade's activities (United Nations, 1999). The committee also reported that local communities' participation has been an important contributor to the Decade's overall success (United Nations, 1999). As a final recommendation, the scientific and technical committee suggested that disaster risk reduction should become a central component of many local-level policies, including those that target social vulnerability, urban risk reduction, land use planning, and hazard assessment (United Nations, 1999:9). This final suggestion demonstrates the IDNDR's, commitment to vulnerability reduction through social empowerment, which is a disaster risk reduction strategy.

7.What is your proposal regarding disaster management policy and its applicability to drought in Msinga?

8.Any comments?

Appendix 4

Story about Msinga

Msinga

by Creina Alcock

It has been Christmas for eleven months now. Men along the footpaths. Men along the roads. Men in courtyards drinking beer. Men in circles under the trees. Men with a holiday look about them, with city shoes and bright shirts and expressions of nothing-to-do-all-day.

At Msinga men are strangers, Christmas visitors who once a year pour into the valleys in a flash flood of skidding taxis and buses that sway to the FM's jive. Overnight the men come in loaded with parcels and bags; presents and treats loaded with excitement. For a month thousands of happy parties chase the echoes from the hills. Then the drums are silent. The flood is over and the men are gone.

The seasons have always happened this way so nobody was prepared when last Christmas the flood fell away leaving men stranded at Msinga. Every month since there have been trickles towards the cities, but every month a stronger current brings streams of workless back to this arid, rocky country. "No work," say the home comers. "There is no work anymore."

It is impossible to make a statement on unemployment at Msinga. It is an area out of sight of authority, out of reach of welfare agencies, too wild and inaccessible for census with its 1 847 km of broken cliffs and hidden valleys. There may be more than 100 000 people at Msinga but they are swallowed in the rough, bushy spaces. Without a town, without a railway, who is to count the jobless coming in? You can guess there is something wrong by all the men at all the beer drinks, all the men

along the roads, all the men that knock for work; slicken, city men. "Anything baas," says one. "Any work as long as it's work." He has a reference to say he is a qualified chef from a five star hotel and was only retrenched because of falling custom. What on earth can a chef do at Msinga?

"Sididile" says a man with a suit. "We are desperate. Work is finished in Goli. I'll have to start a garden though I haven't had a garden before. I bought this seed in town before I came back . . . "and out of the briefcase spills expensive small packets. Most will be useless at Msinga — asparagus, brussel sprouts, celery, kale. "What must I do to make them grow?" asks the man in the suit.

What else is there to do at Msinga but try to grow things in among the rocks, in the hot stony fields far from water? Some black youths fool about as they plant a hedge of aloes to enclose a garden on a windy plateau. "Kom, kom, kom, kaffirs!" bellows the leader. ("We learnt something in t o w n, " he grins). "Kaffir wat maak jy daar? Kom, kaffir, hardloop!" The boys pause from their work, laughing at the mimic. "Any chance of a job?" they ask. Only a year ago they swaggered with the shine of their city experience. "You wouldn't work on a farm!" "Wouldn't we? Times have changed. Why do you think we are making this garden. We are desperate. Sididigile."

Our farm adjoins Msinga and for the purpose of this article we attempted a census of a valley community with 70 homes — 1 000 people. Thirty householders had answered questions before doors were shut against us. "Questions are dangerous," somebody told somebody. "Whenever the government is going to throw people off the land it first asks questions. Who's the kraalhead? How many in the family? Who is away working? Answer questions like that and the next thing you know the lorries will be here to take us away."

Ten of the 30 kraals which answered our questions had unemployed men sitting at home. There were some odd discrepancies in the information they offered. "You say there has been no money since you were sacked last December but every month you go to the store to buy mieliemeal? How do you pay for it?"

"That's none of your business."

" I don't know."

"There are ways."

"We just had the money."

Which means dagga of course. Msinga is subsidized by dagga, a high-risk but high paying crop that thrives in the nooks and crannies of the steep, hot slopes. While we could not offer jobs to all the jobless, we made an offer instead to help them grow food. Were there any volunteers to dig communal water furrows? There could be no payment for the work. Now **that** is the way to assess the unemployment problem.

Twenty men came from one community. Thirty from another. Forty . . . Young men, middle-aged men, and a few who had been forced to retire early. They were neatly dressed, with city skills, and looked oddly out of place now that they were home. Yet for weeks they have been wielding picks and spades chipping hollows in the rocky earth.

One man on a dig asked for help with his unemployment insurance. "When I left, my company told me I must take this letter to my Bantu Affairs Commissioner to get my insurance but although I have been every month there has been no money yet."

Soon we had a book of similar complaints. It is a one rand busride to the Commissioner's office and men have run out of busfare money. We got on the telephone on their behalf to an official who assured us that all the men had to do was come in with the letter from their previous employers and the insurance would be paid out. "Have there been more claims than usual lately," we asked. "Well yes," said the official cautiously. "Why do you want to know? Anyway we can't give you any figures." Nobody will ever have figures for rural areas like Msinga. You are easily forgotten when you live among the hills.

www.disa.ukzn.ac.za/webpages/DC/renov77.6/renov77.6.pdf